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# Gleanings in Bee Culture



After the Honey Flow in Wisconsin.

VOL. XLVIII

September, 1920

NUMBER 9

WAREHOUSE JUST BEING COMPLETED TO

## STORE YOUR HONEY

Let us store or sell it for you

-:-

Our Factory Has Been Enlarged to  
Insure More Prompt and  
Efficient Service.

-:-

Full Line of

## SUPPLIES & FOUNDATION

all the time.

-:-

Always in the market for

## WAX AND HONEY

Send in samples.

**MILLER BOX MFG. CO.**

201 NORTH AVENUE 18

**LOS ANGELES, CALIFORNIA**

"Griggs Saves You Freight"

# TOLEDO

Now for the 1920

## Honey Crop

We will buy it, both Comb and Ex-  
tracted

We want especially White Orange,  
White Sage, White Clover,  
Basswood, Raspberry

Write us what you have, sending sam-  
ples and prices asked in first letter

## Second-hand 60-lb. Cans

These cans used only once, packed  
in good cases; 10 cases, 70c; 50 to  
100 cases, 65c; 100 to 500, 50c

## Beeswax Wanted

**GRIGGS BROTHERS CO.**

Dept. No. 25

Toledo, Ohio

"Griggs Saves You Freight"

# Money Saved by Early Order

SEPTEMBER'S CASH ORDERS

DISCOUNTED EIGHT PER CENT

# 8% OFF!

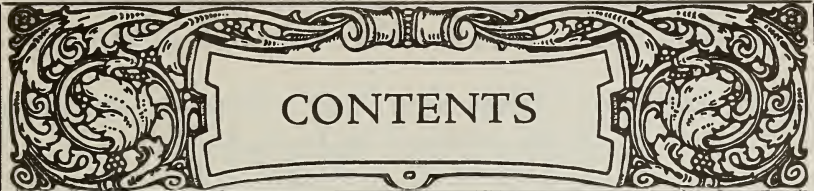
Our guaranteed goods will please you.

Let us quote on your next season's needs at this time, so  
that you may take advantage of the Early Order Discounts.

**THE A. I. ROOT COMPANY** OF IOWA

COUNCIL BLUFFS, IOWA





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## WHEN THE BEES STING,

You'll Need an "Ideal Bee Veil"--True to its name.  
\$1.60 postpaid in U. S. A.

### HONEY.

Send us a sample of your extracted honey. We also buy comb honey. Tell us how much you have and what you want for it. We pay the day shipment is received.

### WAX---OLD COMB.

We pay you the highest market price for rendered wax, less 5 cts. per pound for rendering charges. Our rendering process saves the last drop of wax for you. "Put your name on all packages."

## THE FRED W. MUTH CO.,

"The Busy Beemen"

CINCINNATI, - OHIO.

## 1920

## QUEENS

## 1920

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

### PRICES

One, \$2; three, \$5.50; six, \$10; twelve, \$19. All amounts over one dozen, \$1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready.

Season opens April first.

P. C. CHADWICK

KERN COUNTY

DELANO, CALIF.

## Lewis Bee Supplies—Dadant Foundation

A full line of supplies for the practical bee men at your command.  
Additional information to beekeepers gladly supplied upon request.

*A Post Card Will Bring Our Catalog--Write Dept. C.*

Western Honey Producers

-:-

Sioux City, Iowa

*HONEY*

*HONEY*

## HONEY WANTED

Send us a sample of your honey if extracted, state how put up and your price. We are also buyers of comb, can use unlimited quantities if quality and price are right. We remit the same day goods are received.

**C. H. W. WEBER & COMPANY**

2146 CENTRAL AVE.

CINCINNATI, OHIO

## "EVERYTHING IN BEE SUPPLIES"

"SUPERIOR" FOUNDATION

HONEY CANS

We are at your service

Beeswax Wanted at Top Market Price

**Superior Honey Company -:- Ogden, Utah**

(MANUFACTURERS OF WOOD PROCESS FOUNDATION)

## ALWAYS GOOD QUEENS

I furnish the A. I. Root strain of resistant queens that produce as good as the best of honey-gathering leather-colored workers.

A trial will convince you.

UNTESTED—\$1.50 each ;	- - - - -	25 or more, \$1.40
TESTED — \$2.50 each ;	- - - - -	25 or more, \$2.25
SELECT TESTED, \$3.00.		

**A. J. PINARD, MORGAN HILL, CALIFORNIA**



## HONEY MARKETS

The honey market is not stronger than a month ago. The tumble in sugar prices has had a tendency to weaken the market, and the big buyers are apparently holding off. But if lower and more plentiful sugar has weakened the honey market, it has also assured the beekeeper of sugar for feeding if necessary—at a price.

### U. S. Government Market Reports.

SHIPPING POINT INFORMATION, AUG. 16.

LOS ANGELES, CALIF.—Light wire inquiry, demand moderate for bulk stock, improving for package goods, movement limited, market steady, no change in prices. Carloads f. o. b. usual terms, extracted, white orange and white sage 18-20c, light amber sage 17-18c, light amber alfalfa 15½-17½c, Hawaiian light amber 14½c. Beeswax 40-43c per pound.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

BOSTON.—No arrivals since last report, practically no sales reported of honey; beeswax, demand and movement light. Sales to jobbers, per lb., South American and West Indian, 24-27c.

CHICAGO.—No carlot arrivals, supplies moderate, demand and movement improving slightly, market steady. Sales to jobbers, per lb., extracted, Colorado, Ohio, and Montana, alfalfa and clover, white, 20-21c, light amber 19c, dark ambers 18-19c, California white sage mostly 21c; comb, 24-section cases sage and alfalfa No. 1 \$7.00; beeswax, receipts moderate, demand and movement moderate, market dull. Texas and Oklahoma, light 40-42c, dark 35-38c.

CINCINNATI.—No carlot arrivals since last report, supplies moderate, no demand or movement, no sales reported of honey. Beeswax, supplies light, demand and movement good, market steady. Sales to jobbers, average yellow 44-46c per lb.

CLEVELAND.—Supplies heavy, demand and movement light, market weak. Sales to jobbers, per lb., extracted, 60-lb. cans, Colorados, light amber alfalfa 17-18c, white sweet clover 24-26c, California white orange blossom 20c.

KANSAS CITY.—No carlot arrivals since last report, supplies moderate, demand and movement moderate, market steady. Sales to jobbers, new stock, comb, Kansas alfalfa, in 24-section flat cases, light \$8.00, Missouri alfalfa and clover, light \$9.00-\$9.50; extracted, Missouri light amber alfalfa and clover 20-22c per lb.

MINNEAPOLIS.—Supplies very light, demand slow, practically no movement, market dull, too few sales to establish market.

PHILADELPHIA.—Approximately 17,000 lbs. Florida arrived, demand and movement moderate, market steady, few sales. Sales to jobbers, extracted, Florida light amber palmetto 20c per lb.

ST. LOUIS.—Supplies light, demand and movement slow, market dull, almost too few sales to establish market. Sales to jobbers, per lb., extracted, Arkansas amber, mixed flavors in barrels 17c, in cans 19c; comb, no sales reported; beeswax, supplies light, demand and movement limited, market dull, few sales to jobbers, prime yellow 35-36c per pound.

ST. PAUL.—Supplies very light, demand slow, practically no movement, market dull, too few sales to establish market.

NEW YORK.—Receipts by freight equivalent to 1 car California and 50 barrels West Indies arrived. Supplies liberal, demand and movement limited, market dull. Sales to jobbers and large wholesalers, extracted, domestic, per lb., California, light amber alfalfa mostly 17c, white orange blossom 17-18c, West Indian, per gal., refined \$1.25-\$1.40, mostly \$1.25; comb, supplies very light, few sales. New Yorks, 24-section cases \$7.00-\$7.20; beeswax, no arrivals reported, supplies moderate, demand and movement light, market weak. Sales to jobbers and large wholesalers, per lb., South American and West Indian, crude, light 24-25c, dark 22-23c, African, crude, light mostly 23-24c, dark 20-21c, few 22c.

George Livingston,  
Chief of Bureau of Markets.

### Opinions of Producers.

Early in August we sent to actual honey-producers scattered over the country the following questions:

1. At what price are producers selling extracted honey wholesale? extracted honey retail?
2. For what wholesale price are producers holding their extracted honey? their comb honey?
3. Are buyers active, and what are they offering wholesale for extracted honey? for comb honey?
4. Is there prospect of a fall crop? if so, from what source or sources?

Answers, as condensed by the Editor, are as follows:

BRITISH COLUMBIA.—Producers are selling extracted honey wholesale 29c, retail 35c; comb honey, wholesale 36c, retail 45c. Bulk of crop is not taken off yet. There is promise of a fall crop in some districts from fireweed.—W. J. Sheppard.

CALIFORNIA.—Producers are not selling extracted honey at wholesale. It is retailed at 25 to 35c. No comb on the market here. For wholesale price producers are holding their extracted honey at 20c for white. Not any buyers here. There is no promise of a fall crop owing to too hot weather and lack of moisture. Bean honey enough to winter well. Hot weather, but little fog and lack of moisture caused short bean crop. State Exchange made a big mistake to undersell buyers and demoralize the market for the time being.—M. H. Mendleson.

CALIFORNIA.—Producers are selling extracted honey wholesale 20c, retail 25c. Buyers are not active; they are offering wholesale for extracted honey 16-18c. There is promise of a fall crop from orange, sage, alfalfa, wild buckwheat, sumac, etc. Locations differ, some giving a full crop, while others are short.—L. L. Andrews.

COLORADO.—The general understanding seems to be that strictly white honey should bring 20c in carload lots. White honey, which includes the great bulk of our honey from alfalfa and sweet clover, 19c; light amber, 18c. The whole crop in districts where there is any water-white honey and not too much of the light amber should bring 19c. Comb honey has been selling for \$6.00 to \$6.50 in a local way for No. 1. Large producers have made no effort to sell as yet, and buyers are conspicuous by their absence. Bulk of crop is gathered in August and September where sweet clover is the main source. Chico (rabbit bush) is just beginning to yield and generally continues to yield considerable quantities of light amber honey till Sept. 15.—J. A. Green.

FLORIDA.—Producers are selling wholesale for 20c—the highest price obtained so far. No comb produced. Not enough honey to attract buyers. For fall crop, cabbage palmetto promises well, but bees are weak from not getting honey in so long a period; in fact, I have been obliged to feed considerable in some locations. There was a partial crop of mangrove honey along the coast in June.—Ward Lamkin.

IDAHO.—Producers are selling extracted honey wholesale at 20c. No sales of comb honey. Producers are holding their extracted honey, expecting 20 cents here. No reports of prices of comb honey. Small buyers of extracted honey are active; we seldom get offers for comb honey. We seldom get any late honey here; what there is comes from third crop alfalfa.—E. F. Atwater.

ILLINOIS.—Producers are selling extracted honey at retail at 25c; comb honey at 30c. For wholesale price producers are holding their extracted honey at not less than 20c, their comb honey at not less than 30c. The promise of a fall crop is poor. Heartsease, boneset, and asters are the usual sources.—A. L. Kildow.

INDIANA.—Producers are selling extracted honey wholesale 25c, retail 35c in pails; comb honey, wholesale \$8.40 per case of 24 to retailers, retail 45c. All honey sold directly to consumers or



to retail dealers. There is promise of a fall crop from goldenrod, buckwheat, mint, milkweed, heartsease, etc.—E. S. Miller.

**IOWA.**—Producers are selling extracted honey, wholesale 25c, retail 28-30c; comb honey, wholesale \$7 per case, retail \$8.00-\$8.50 per case. Producers are holding their extracted honey at 25c wholesale; their comb honey at \$7.00-\$8.00 per case of 24 sections. Buyers are not very active yet. Inquiry is on the increase—not much comb honey here. Poor outlook for fall crop. Heartsease is thin; for this reason beekeepers are not inclined to extract too closely now.—Frank Coverdale.

**KANSAS.**—Producers are selling extracted honey wholesale 20c, retail 30c; comb honey, wholesale \$7.50-\$8.00, retail 40-45c. We have no large buyers here. Not much promise of a fall crop. Heartsease is our fall crop.—A. D. Raffington.

**MARYLAND.**—Producers are selling extracted honey wholesale 24c, retail 35c; comb honey, wholesale 26-30c, retail 40-50c. No buyers in this State; honey goes to market men, stores, or commission men. There is promise of a fall crop, enough for wintering, from aster, goldenrod and swamp weeds. We make no fall surplus, but get enough honey in good seasons to keep from feeding.—S. G. Crocker, Jr.

**MASSACHUSETTS.**—Producers are selling extracted honey wholesale 20-40c, retail 40-50c. No comb honey for sale. Have not seen any buyers, as most of the crop is sold right at home. I think there is promise of a fall crop from goldenrod and aster.—Omer M. Smith.

**MICHIGAN.**—Producers are selling extracted honey wholesale 24-28c, retail 35-40c; comb honey, wholesale 35-40c, retail 40-50c. For wholesale price some producers are holding their extracted honey at 25-30c; their comb honey at 35-40c. Buyers are not very active, but are offering wholesale for extracted honey 24-28c; for comb honey 35-40c. Flow is now on from buckwheat, goldenrod, and Spanish needle.—B. F. Kindig.

**MINNESOTA.**—Producers are selling extracted honey wholesale 18-20c, retail 30-35c. For wholesale price some producers are holding their extracted honey at 20-22c. Buyers are not active, but they offer wholesale for extracted honey 15-18c. The promise of a fall crop is fair, from sweet clover, goldenrod, aster and in some sections from fireweed.—Chas. D. Blaker.

**MISSOURI.**—Producers are selling extracted honey wholesale \$3.00, retail \$3.50-\$4.00 per case; comb honey, wholesale, per case, 1st, \$7.50; 2nd, \$6.75; fancy, \$8.40. Comb retails at 45-50c per pound. Some producers hold extracted as high as \$10.80 a case. Buyers are offering wholesale for extracted honey, \$3.00 per gallon; for comb honey, 2nd, \$6.75; 1st, \$7.50; fancy, \$8.40 per case. Very little demand; too early in the season. Promise of a fall crop is not very good—getting too dry.—J. W. Romberger.

**NEW JERSEY.**—Producers are selling extracted honey wholesale 25c, retail \$1.25 quart jar; comb honey, wholesale 30c. There is promise of a fall crop from goldenrod and aster.—E. G. Carr.

**NEW YORK.**—Producers are selling extracted honey wholesale 20-22c; comb honey \$8.00-\$9.00 per case. Buyers are offering wholesale for extracted honey around 20c. Too early for comb honey. The promise of a fall crop is not good here. Very little buckwheat; goldenrod may yield some.—F. W. Lesser.

**NEW YORK.**—Producers are selling extracted honey wholesale 25c, retail 35c; comb honey, wholesale \$9.00-\$9.50 a case, retail 50c a section. The promise of a fall crop is exceptionally good from buckwheat, second clover, goldenrod and aster.—Adams & Myers.

**OHIO.**—Producers are selling extracted honey wholesale 28c, retail 30c; comb honey, wholesale 35c, retail 40c. Some producers are holding their extracted honey at 26c wholesale; their comb honey at 35c. Buyers are active, offering 25c wholesale for extracted. Bees are now working on red clover and doing well.—Fred Leininger.

**OKLAHOMA.**—Producers are selling at retail extracted honey 30-35c; comb honey 50. There

is promise of a fall crop from smartweed and cotton.—C. F. Stiles.

**PENNSYLVANIA.**—Producers are selling extracted honey wholesale 23-25c, retail 26-30c; comb honey, wholesale 30c, retail 35c. Buyers are "watchful waiting." There is promise of a fall crop from buckwheat.—Harry W. Beaver.

**TEXAS.**—Producers are selling extracted honey wholesale at 18c, at retail 30c; comb at 20c wholesale, 35c retail. Producers are holding extracted for 20c and comb at 24c. Honey market is very quiet. There is promise of a good fall yield from cotton, broomweed, bitterweed, asters, goldenrod and bone sap.—H. B. Parks.

**TEXAS.**—Producers are selling extracted honey wholesale 17c, retail 20c; comb honey, wholesale, 20c, retail 23c. Buyers are active, and there is more demand for comb. There is no promise of a fall crop at this time. In the como districts there will be a flow of honey from that brush, but it grows only in certain places and blooms in October.—J. N. Mayes.

**EAST TEXAS.**—Producers are selling extracted honey wholesale 15-17c, retail 25-30c. Buyers are active and are offering at wholesale for extracted honey 15-17c. There is promise of a fall crop, principally from field peas, bitterweed and white snakeroot.—T. A. Bowden.

**TEXAS (Lower Rio Grande Valley).**—I know of very little honey being sold. Extracted retails locally at 35c. I know of no buyers in this section. A normal fall crop will be produced from the usual sources. There is but little honey produced in this section outside of what is consumed locally.—A. Lynn Stephenson.

**UTAH.**—Producers are selling extracted honey wholesale 20c, retail 25-30c; comb honey, wholesale 25c, retail 30c. Buyers are not active. They offer for extracted, 19c for white. For comb honey there is only a local demand yet. There is promise of a good crop in the fall from alfalfa and sweet clover.—M. A. Gill.

**WASHINGTON.**—Producers are selling extracted honey wholesale 20c, retail 20c, with 20 per cent added, plus the labels, filling, cost of containers, minus the cost of 60-lb. can. Buyers are quite active, offering 20c wholesale for extracted honey. There is no promise of a fall crop.—Geo. W. B. Saxton.

**WISCONSIN.**—Producers are selling extracted honey wholesale 25-30c, retail 25-35c; comb honey, wholesale 33-35c, retail 35-45c. I have heard of some producers offering extracted at 23c; more at 25c; and most beekeepers are asking 25c to 28c. There has been very little movement of extracted in large quantities so far. We do not get a fall crop to any extent. In the central part of the State considerable buckwheat is produced, but there is no report on present condition of crop.—H. F. Wilson.

### Advertisements Received too Late to Classify

**FOR SALE.**—Shipping screens for 8-frame Langstroth hives at 12½c each.

F. W. Morgan, Deland, Ills.

**FOR SALE.**—Three barrels; good quality, light amber honey at 20c per pound.

F. C. Ries, Macon, Ga.

**WANTED.**—Small extractor immediately. Cowan or Novice preferred. State price. Van Collins, Port Chester, R. D. No. 1, N. Y.

### I. F. MILLER'S STRAIN

Italian Queen bees for sale. Northern-bred, for business from my best, *Superior Breeders*; gentle, roll honey in, hardy, winter well, not inclined to swarm, three banded. Queens a specialty, twenty-six years' breeding experience. Satisfaction guaranteed. Safe arrival in U. S. and Canada.  
Untested .. \$1.40; 3, \$3.75; 6, \$7.00; 12, \$13.00  
Select Unt. \$1.65; 3, \$4.50; 6, \$8.50; 12, \$16.00

I. F. MILLER, Rt. No. 2, BROOKVILLE, PA.

# ITALIAN BEES AND QUEENS

We are prepared to give better service in every respect than we have ever given in Bees and Queens and supplies

## UNTESTED QUEENS

To June 15th		After June 15th	
1 . . . . .	\$1.50	1 . . . . .	\$1.25
12 or more . . . . .	1.25	12 or more . . . . .	1.00

## TESTED QUEENS

To June 15th . . . . .	\$3.00	After June 15th . . . . .	\$2.00
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## BEEES

1-pound packages . . . . .	\$3.00	2-pound packages . . . . .	\$5.50
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We will furnish one comb filled full of brood with one pound of bees for \$5.50, no queen. You are almost sure that these will reach you in perfect shape. You get a 50c comb; they will build up much quicker than a 2-pound package. There is no danger of their swarming out.

## NUCLEI

1-frame . . . . .	\$4.00	2-frame . . . . .	\$7.00	3-frame . . . . .	\$9.50
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No queens included at above prices.

Nuclei are on good combs, full of brood with plenty of bees.

## FULL COLONIES

We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens**:

8-frame . . . . .	\$18.00	10-frame . . . . .	\$20.00
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## DR. MILLER'S QUEENS

Let's make this a Miller queen year. Dr. Miller has furnished us breeders from his apiaries, and we are the only ones that he furnishes breeders to. In these queens you get the fruits of the foremost beekeeper of the world. We pay Dr. Miller a Royalty on all queens sold.

To June 15th		After June 15th	
1 . . . . .	\$2.00	1 . . . . .	\$1.50
12 or more, each . . . . .	1.60	12 or more, each . . . . .	1.25

We carry a full line of Root's supplies, including the new Root-Weed foundation, Prompt Service.

## THE STOVER APIARIES

Successors to  
THE PENN COMPANY  
Penn, Miss.

MAYHEW, MISS.

## Substantial packages are worth while for your high-priced honey

We sell ROOT SHIPPING CASES. They are well made and lined with corrugated paper thruout. The Standard Case holds twenty-four sections. We have a limited number of twelve-section and sixteen-section cases at a bargain.

### FIVE-GALLON CANS.

The ordinary five-gallon can weighs about  $2\frac{1}{4}$  lbs. Ours weigh 3 lbs. each and have a 3-inch screw-cap. It is heavier than most cases. A case and two cans weigh 19 lbs.

### FRICTION TOP PAILS.

We have the 5-lb. and 10-lb. pails in stock at Lansing. This means quick service and small delivery expense compared with shipments from some distant point.

NOTE: New crop comb honey wanted for which we can furnish cases and carriers.

We invite visitors to State Fair at Detroit to call on us at our exhibit in Bee and Honey Department.

**M. H. Hunt & Son**

510 North Cedar Street  
Lansing, Michigan



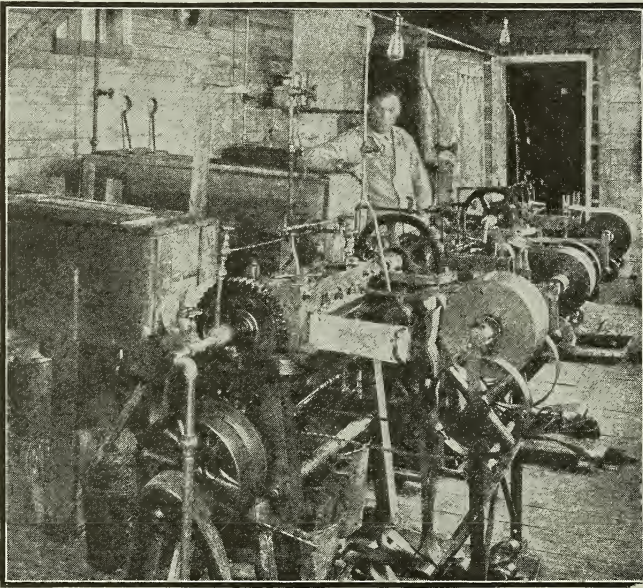
## DADANT QUALITY IN MACHINE - MADE FOUNDATION

The WEED PROCESS was not invented in a single day. E. B. Weed, who invented the present system of machinery on which DADANT'S FOUNDATION is manufactured, made many experiments before he was successful.

Part of his experiments were made at the Dadant factory. Some of our older workmen can still recall the hot wax squirting everywhere from the jaws of different presses before the modern sheeting machine was finally evolved.

His process was promptly accepted by the Dadants as a step forward, not in the making of a foundation superior to the handmade, but of insuring quantities sufficient to supply an ever growing demand.

Into this process were carried all the care, all the pains, all the tests, which had made DADANT'S FOUNDATION so well liked.



Sheeting Wax on Weed Machines for Milling into  
DADANT'S FOUNDATION

Nailing machines have largely replaced hammers, and trucks taken the place of horses and wagons, but the same care, the same exactness of having all foundation first of all satisfactory to the Dadants and to the Dadant bees is still exercised and will continue to be.

### DADANT'S FOUNDATION

Every Inch, Every Pound, Every Ton, Equal to any sample we have ever sent out. Specify it to your Dealer. If he hasn't it write us.

## DADANT & SONS, HAMILTON, ILL

CATALOG AND PRICES ON BEE SUPPLIES, BEESWAX, WAX WORKING\* INTO COMB FOUNDATION, AND COMB RENDERING FOR THE ASKING



## EDITORIAL

THE TENDENCY of the times is now more and more toward a central extracting station



### Central Extracting Stations.

with complete power equipment and tanks, rather than toward small hand equipments at each individual yard or small portable hand equipments carried from yard to yard. E. E. Coveyou, Petoskey, Mich., one of the most extensive beekeepers of Michigan, told the Editor that it was very clear to him that a large well-equipped extracting plant to which the extracting-combs are carried and extracted, is far preferable to either of the other plans mentioned, for he had tried them all. His idea was to have a complete power equipment, tanks and all, located at his home, with no apiary at that point, to avoid the trouble with robbers when extracting the combs. Of course, he said, there will be bees brought in with the combs; but these, as they fly off the combs, go toward a screen, where they cluster. At the end of the day he makes them up into a nucleus or colony. After he accumulates two or three colonies in this way he takes them to some out-location and builds them up into an apiary. In this way he starts new yards, saves all the bees, avoids the danger of spreading foul brood from robbing, and, what is of considerable importance, avoids any trouble with neighbors at out-yards. When extracting it is almost impossible to avoid robbing when bees are near by. When bees at the close of the honey flow get a taste of new honey they are apt to make things disagreeable for farmers and others at an out-yard if the extracting is done on the spot. With his central station at his home, **where there are no other bees**, Mr. Coveyou avoids all robbing, and there is no disturbance at the out-yards other than would be occasioned by taking out and putting back the combs.

There is another point that is worthy of some consideration. The extracted honey, instead of being scattered at four or five different yards where thieves can get it, is **kept under lock and key at home.**

The modern automobile or automobile truck makes it possible to haul big loads of combs back and forth from the yards in a way that could not have been done a few years ago. It was then that a little portable extracting outfit had to be used at each yard.

There is still one more point in favor of the central station. There is no question but that a power extractor will get more honey out of the combs than a hand extractor; but just how much more it is impossible to say, but enough more to pay for the extra cost of the investment at the central station.

Mr. Coveyou also thinks that many beekeepers make a serious mistake in having a

home yard at the central extracting station. Probably two-thirds of the beekeepers who have central stations have a yard of bees there also. This involves the nuisance of robber bees, opening and closing screen doors, danger of foul brood, and the serious danger of starting robbing and perhaps a lawsuit with the neighbors whose children or stock are stung. Ordinances are continually being introduced in councils forbidding the keeping of bees within village or city limits. While all such ordinances have been declared unconstitutional, the main trouble is not because the bees are in the village or city, but because of robbing induced by extracting in these urban yards.

Mr. Coveyou has a sixteen-frame power extractor of novel design—one of the largest, if not the very largest, machine in any part of the United States. He has also what he believes to be a practical machine for uncapping combs in a wholesale way. Many attempts have been made to make a machine uncapper that would do the work more expeditiously than any system of hand work. But practically all of them have resulted in failure. We hope to have illustrations showing some of Mr. Coveyou's ideas, for one has only to look over his place to see that he is an original genius—a man who takes long looks ahead and then puts those looks or ideas, if you please, into practical application.

Mr. Coveyou is one of the original bottlers of honey. He established the fact that honey can be sold locally in small containers some years before the large bottlers of the country had got under way. Altho a comparatively young man he is an old man at the business just the same. We hope to introduce him to our readers more extendedly later, and at the same time show some of his apparatus.



ELSEWHERE IN this number of Gleanings we have editorially commented on the im-



### Good Honey Versus Sugar For Winter Food.

portance of using good honey in place of sugar for wintering. Altho we have referred

to the same thing in previous issues, the matter is so important that we must mention it again. In the first place, there is no assurance that we shall be able to get sugar for feeding bees, at a price we can afford to pay. Sugar syrup is slightly higher than good honey, and much higher than fall honey. There is no greater foolishness in all bee-dom than to extract honey, or extract too close, and feed sugar syrup. When honey was relatively higher-priced, almost two to one, there was some justification for feeding syrup; but now that sugar syrup is more expensive than honey, the good beekeeper will,

of course, let the bees have their natural food. It will be admitted, probably, that sugar syrup is the equal if not the superior of good honey during the coldest part of the winter when there is no brood-rearing; but after that starts in February and March, for outdoor-packed hives, honey is unquestionably better. Honey, as we now know, contains vitamins and other essential elements that neither sugar syrup nor even combs of pollen contain. (See page 538.) Every practical beekeeper knows that bees will breed better in the summer on honey than on sugar syrup; and why not in early spring or late winter?

The Editor has just come from a series of field meets in the various parts of the country where the winters are long and severe, and the general consensus of opinion among the large beekeepers is to the effect that good honey, especially where the bees make their own winter nests, is superior to sugar syrup—not for midwinter, but for late winter and early spring. Bees may do all right on syrup, provided the spring is favorable; that is to say, if they can get a little fresh pollen and nectar in March and April.

We have one report on hand of an extensive beekeeper who fed one portion of his bees sugar syrup very heavily the preceding fall. There was another lot he let have their natural stores—aster, goldenrod, milkweed—everything under the sun; but it was all sealed in the combs. Both lots of bees, packed the same, came thru in splendid condition up to the first of March. The spring was exceptionally bad, and the bees were unable to fly for a month or six weeks. The sugar-fed bees died out almost entirely, while the bees with the natural stores came thru in fine condition. The reason was that the sugar-fed bees could not breed to furnish young bees to take the place of the old ones. The latter died off, or, as we commonly say, spring-dwindled. Scores of the most extensive beekeepers of the country have told the Editor that our slogan of "honey in the place of sugar for winter food" is safe and sane doctrine. It is no new thing, because old veterans like Dr. Miller have been talking this same thing for years; but now that sugar syrup is higher than honey there is all the more reason why we should use honey this fall.

Sometimes beekeepers have found that bees in modern double-walled hives have died after a severe winter and spring, while bees in poor box hives, with no protection whatever, would come out in good condition. The reason is plain. The last-named bees would have natural stores and a winter nest without any tinkering of the brood-nest, while the other bees would have sugar syrup and a brood-nest manipulated "according to the latest ideas."

The foreman of our apiaries says that this year when honey has been coming in almost every day for two months, our bees have bred up better than ever before; that there is more brood per colony and more young

bees than he has ever had before at this time of the year. Other years we have fed sugar a little every day for the same period, but while we secured increase the results were far below those of this year. Others have had the same experience. It simply proves that honey is a natural food and of course the bees do better on it.

Some years ago the Editor, together with some of our best beekeepers, advocated sugar syrup as the best stores for winter and spring, but he will never do it again.

There is just one more consideration: that whenever a beekeeper takes good honey out of his hives and substitutes sugar syrup he is making his own honey a competitor of himself and boosting the sugar business. At the same time he is helping the coward that beekeepers feed sugar to their bees and then sell that syrup to their patrons as honey. Of course, this can not be done profitably, even with cheap sugar.

We admit that beekeepers need sugar. Sometimes honey is infected with foul brood and can't be used. Some seasons are failures or partial failures. It is then necessary to use sugar syrup; but no beekeeper should extract too close and then make up the deficit with sugar syrup. The wise beekeeper, when the season is good, will reserve combs of good honey, if he has no foul brood, and then if he runs short in the fall on account of the failure of buckwheat, goldenrod, aster, or milkweed, he will make up the deficiency with these reserve combs. He will likewise give those reserve stores early enough so that the bees may form a winter nest. He will go further. He will give the colonies a sheltered location and put them in packing cases or double-walled hives. The more protection the bees have, the less stores they will consume. Then as the cold weather comes on he will contract the entrances, making sure that they are kept free during the winter.

Later: This article was submitted to A. I. Root. After reading it carefully he said it is safe and sound doctrine all thru, and then he said: "You might have added there is a big loss of syrup when you compel the bees to recap their sugar stores. There is a loss also in transmitting the syrup from the feeder to the combs, because the bees will consume some of the syrup when they don't need it." The early editions of his A B C of Bee Culture make this very clear.



THERE NEVER was a time in the history of beedom when the future looked brighter for the beekeeper than



**A Hopeful Future for Beekeeping.** now. This does not necessarily mean that he

will get higher prices than were realized during 1919 (he may get lower), but it does mean that the business of honey production will be on a more solid foundation than it ever has been before.

While the market on honey, according to



the Government reports, has been a little weak, yet, in any event it will not fall proportionately more than other commodities, and therefore the earning power of the beekeeper will be the same.

The Editor is one who believes to a very great extent that sugar and honey are competitors—competitors because there is no real substitute for granulated sugar except honey for cooking, canning, for soft drinks, or for general table use. Glucose and its allied products never were and never can be competitors of honey, and the same might be said of cheap molasses. They have their own fields, it is true, but these fields do not overlap honey, as a rule.

Why are sugar and honey competitors of each other? For the reason already mentioned, that, whenever sugar is scarce, honey can take its place to a considerable extent: and when sugar goes up in price, or when it can be obtained only in limited quantities, honey, always available, is about the only substitute that can be used. Just read this from the last issue of a journal devoted to baking, entitled *Dough*, in its issue for July, page 15:

"Bakers who find it hard to secure sugar for bread-making will find honey a good substitute. Honey gives the crust a rich brown color. Honey bread keeps fresh for several days, and honey imparts a distinctive flavor and odor to the loaf.

"The use of honey permits cutting down the amount of yeast used. Formulas and recipes for using honey in breads, biscuits, and buns, can be found in the Baker's Review for June. With the present difference in price between honey and sugar a saving of from \$1.10 to \$1.50 is effected on every 1000 one-pound loaves."

Mind you, the above was not written by the editor of *Gleanings* nor by any other person interested in the honey business, but by one who is the editor of a journal devoted to **baking**. What he says has been voiced by local bakers. The further fact that big baking concerns of the country have used hundreds of carloads of honey, and were using it even when sugar was low in price and plentiful, shows that honey is, to a great extent, indispensable in baking.

The time was, before the war, when the big bakers of the country were using a substitute for honey—invert sugar. This is made by putting a little acid in a sugar syrup and applying a slow heat. The process changes the sucrose of granulated sugar into invert sugar—a product that has equal parts of levulose and dextrose. **So far as its sugar content is concerned** it is the same as honey, and will produce the same effect as honey in making the cakes keep. The bakers, of course, will use whichever is cheaper. When sugar was selling at  $5\frac{1}{2}$  to 6 cents a pound, invert sugar could be made for about one cent more per pound. This was cheaper than the ordinary honey at the time, and the bakers came very near dropping honey. Now the situation is changed. With sugar around 22 cents a pound, with artificial invert sugar costing still more per

pound, and honey all ready for use in earlots at considerably less per pound, the bakers will naturally use honey. They must have invert sugar, whether it is the artificial product from granulated sugar or the natural article from honey.

What is taking place in the baking trade is also occurring to a lesser extent in the soda-water and ice-cream business. When sugar syrup is worth relatively more than honey, then honey, the only substitute, will be used in a large way. While sugar syrup and honey are more nearly on a parity, the former is still higher than many honeys.

Another consideration is the fact that the Nation has gone dry. Since alcohol has been barred from all drinks a tremendous boost has been given to the soft-drink business. The former toppers, when they can't get "home brew," use soda water or other soft drinks in large quantities. Many of the former saloons are now soft-drink parlors, and add to the list of regular soft-drink establishments that are today doing a bigger business than ever. It is a physiological fact that when alcohol is taken away sweets largely take its place.

There are ice-cream concerns now that are advertising "honey ice-cream," buying the honey by the carload. They are finding that the public likes honey ice-cream, and "honey" is a good catchword in advertising. One very popular brand now being advertised in a large way in Cleveland is called "Orange Blossom Honey Ice-cream." Large billposters can be seen all over that city and vicinity extolling the merits of that particular article.

Honey is also beginning to be used as a "dip" on ordinary ice-cream. The minute it strikes that particular delicacy it becomes thick and waxy; and a few are now discovering that a honey dip is about the "finest thing that has ever been served from an ice-cream counter. It follows that the ice-cream people will, if they do not now, use honey in a double way—in the cream itself and on top of it.

Honey as yet is used in only a limited way in the making of candy. Glucose and molasses, on the other hand, are used largely in cheap candies. When honey is used it is in the high-grade candies. Honey, therefore, is in no sense a competitor of glucose or molasses except as the public may buy these cheap syrups rather than honey.

When beekeepers once learn that good honey is a better winter food than sugar, instead of encouraging and boosting the sugar business by buying sugar to feed for winter, they will create another outlet for their own product and use honey. Pound for pound, honey will go further than sugar in a hive. Every pound of sugar the beekeeper buys makes one more pound of honey to sell and to compete with other honey on the market. While sugar syrup is all right, and a splendid food during the coldest part of the winter, when there is no breeding, it is a poor substitute for honey when the queen begins

to lay. It is very doubtful whether sugar syrup only and combs of pollen are ever equal to good honey alone.

If so, the sooner this fact is pounded into the heads of beekeepers, the sooner they will build up their own industry. Sugar syrup at the present time costs more than honey. To extract the honey and feed the sugar syrup is a tremendous drain on bee life. Even if the sugar syrup costs only half the price of honey, it is a question whether the beekeeper can afford to extract his honey and feed the syrup. Elsewhere in this number of *Gleanings* we present some evidence on this point that is worth considering.

"But," you say, "your optimism is based on the high price of sugar. Do you consider what would happen if the Government should get after the profiteers in sugar—those who are hoarding it, as they undoubtedly are—and bring the price down to ten cents, when honey would fall with a tremendous crash?"

A ten-cent sugar might depress the market on honey provided it could be had in quantities. We doubt if good honey will ever be cheaper than 20 cents retail. The awful war, expensive as it was, has introduced honey into the arts and trades, and it is going to stay there. The housewife, the baker, and the candy-maker, as well as the ice-cream people, have learned the use of this kind of sweet. What honey they have once furnished they will have to furnish again, because the public will demand it.

In this connection it is, perhaps, proper to observe that honey is being put on the table as it never was before. It can be obtained on most of the good trains, in many of the best hotels, and, what is more, it can be secured by the housewife in practically every grocery in the United States. The business of bottling honey in the United States has grown by leaps and bounds. In the last few years it has developed more than 1000 per cent. Honey for the table to spread on bread and butter or on breakfast foods has come to stay. Jellies and jams have "gone out of sight" in price, and honey is generally much cheaper and always available.

There is another factor that should furnish no small amount of optimism; and that is that Europe, due to the Great War, has learned something of the value of American white honey; and no product of the West Indies, of Africa, or of South America, so far as we know, has the fine flavor of the American product. When we say "white" honey, we mean clover, basswood, alfalfa, sweet clover, mountain sage, orange blossom, gallberry, tupelo, and we might add a score more of white honeys, such as raspberry and fireweed, which are found in some of our northern forests.

Let us now look on the other side—the conditions that are more favorable to the beekeeper. They are to be congratulated on the fact that we are discovering new and unoccupied localities where large quantities of honey can be produced, and that, too, in

carlots. It is not necessary to overlap on the other man's territory. There is a further cause for congratulation; and that is, we are learning better how to winter bees. While disease is, perhaps, more prevalent than it ever has been before in the history of beekeeping, thanks to Uncle Sam and to the activities of our various States, we know better how to eradicate it than formerly.

Most of the important honey States have good foul-brood laws. The bee inspectors not only show how to treat disease, but how to keep bees better.

Alsike and sweet clover are spreading over the country at a tremendous rate. In many of the eastern States alsike, a wonderful honey plant, has all but crowded red clover out. The farmers don't care about the bee business, but they are finding that alsike clover will grow where red clover can not even get a foothold. Furthermore, thanks to extension men, the farmers are finding it pays to lime their lands. Where this is done splendid yields of clover result. Sweet clover is making a rapid spread all over the West, until it is now a question which is the more important honey plant, sweet clover or alfalfa.

Shipping bees in pound packages without combs is coming now to be a science. When there comes a severe winter, such as the last one, it is now possible for a northern man to buy bees in two or three pound lots in the South, and with the aid of these bees he may have as good or better colonies than those he has wintered over. Quite generally the package business has been immensely profitable to the shipper and to the consignee. We have had numerous reports of beekeepers who have secured from two or three pounds of bees in early spring 100 pounds or more of honey, and have a good colony, and enough stores for winter.

Last, but not least, there never was a time when Federal and State aid for the beekeeping industry was more freely offered than now. The various bee-extension courses under Dr. Phillips, of the Bureau of Entomology, have done a world of good in making **better** beekeepers. The Editor has heard on every side how the old veterans have admitted that they got a great deal of information from the Government men, who told them not only how to keep bees better but how to avoid winter losses and at the same time combat disease. In some cases the bee-extension men have brought these new and better ways right to the door of the beekeeper.

There is a large number of bulletins touching on the various phases of beekeeping that can be had for the asking. The apicultural departments of several of the States, particularly Michigan, have been sending out circular letters that deal with local and timely conditions.

If a beekeeper can not make good now, it is his own fault; and the whole outlook for beekeeping is brighter today than ever before.



**T**HE term "wintering" may be taken to mean the maintaining of colony strength during the inactive season. Building up colony strength for the harvest—"spring managment"—is so closely associated with wintering that at The Pettit Apiaries we endeavor to combine them and make fall preparations so thoro that no further attention is required until extra brooding space is needed in spring.

Successful wintering depends on just a few all-important factors. These are the bees, the stores, the hive, the immediate surroundings, and the general surroundings rather vaguely designated in beekeeping literature as "locality." The bees must be vigorous and plentiful. That is, the colony must be strong in vitality as well as in numbers. To gain this, much depends on the queen. The stores must also be plentiful, and, especially for our Canadian winter, must be of the very best quality, preferably sugar syrup. The hive should be suited to the size of the cluster and during early autumn and late spring should have extra

## WINTERING IN THE NORTH

*Packs in Quadruple Cases in September and Feeds Later. How a Year-round Food-chamber is Provided*

By Morley Pettit

wintering is rather indefinite, except that where winters are colder and longer, wintering becomes a more exacting science.

At The Pettit Apiaries wintering begins with attention to queen condition. I was almost going to say that it ends there, but there are some other important considerations. All thru the active season our queens are under observation, in the sense that after each colony has had careful attention, any defalcation, such as failing to store surplus, preparing to swarm, etc., is charged to the head of the colony, and something happens to her head—or thorax to be exact. Queen-rearing is started as early as the weather permits to provide for the requeening which goes on thus all the season. Toward the end the replacing of queens of doubtful record is quite general.

### Three Important Points.

In further reference to the "bees" factor for winter, three important points are given

brooding space. It requires plenty of insulated covering to keep out frost. And there should also be ample shelter from winds. The part played by "locality" in



A corner of the S yard of The Pettit Apiaries, showing portable wind screen; also some of the ten-year-old quadruple cases which are still going strong. The two double cases have now gone to the discard.

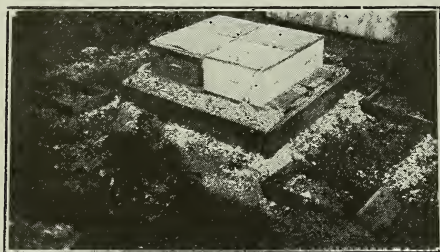
careful attention when the white honey crop is removed. Ample stores are left for autumn brooding, plenty of brood-comb space is provided for the queen, and provision is made against the storing of fall honey, or in fact any other honey, in the brood-chamber. We produce extracted honey exclusively and use mainly the 10-frame Langstroth hive. To provide stores for the possibility of a dry fall we prefer to leave on each hive a shallow super which has been filled with honey earlier in the season. This



Stand of Pettit quadruple case in position ready for the hives except that shavings are pulled up above corner, to show construction.

“food-chamber,” as Mr. Townsend calls it, we have been testing in a small way for several years and have decided to adopt it generally in all the apiaries. It is never removed from the hive but fills up in times of abundance and gives back in time of need. We prefer this to a double Langstroth brood-chamber for our conditions.

Increased brooding space is provided by using a light top-bar instead of the usual  $\frac{3}{4}$ -inch depth. By careful sorting, all but the more perfect combs are eliminated. Some queens allow their brood-chambers to become “honey-bound.” These queens also



Hives in position on stand of Pettit quadruple case. The bridges are placed and all is ready for the sides to be set up.

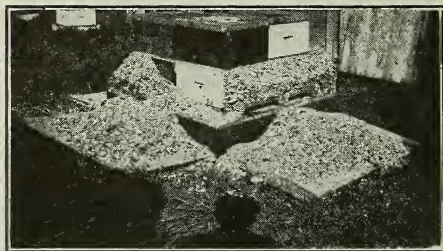
are eliminated. When the white honey is removed, two or three Langstroth supers of combs are returned to each hive over an excluder whether fall surplus is expected or not. This helps to give brooding space and keeps inferior honey out of the brood-chamber. Our policy is entirely at variance with that of removing supers early so as to crowd the brood-chamber with honey and save feeding, as we believe that works a double

wrong by checking late breeding and endangering the winter health of the bees.

### Kinds of Winter Cases.

When cool days come in September all supers are removed and the hives are placed in winter cases. The aim is to get this done as early in the month as the weather permits the removal of the supers, as we believe the bees set their house in order for the winter better with the packing at least on the sides and bottoms. As no serious attempt has been made to standardize winter cases the beekeeper's imagination here has free play. He can vary the dimensions, the number of hives and their position, the kind of insulating material, and so on, ad infinitum—almost. If he has much initiative he proceeds to do this from time to time, having lots of fun out of it and eventually producing a case which he himself likes better than any other. If he happens to get into print with it he may win fame in an apicultural way by conferring his name upon the child of his imagination—or adoption!

As a result of this experimentative turn of mind we now have seven different kinds of winter cases, three of which have gone to



Unpacking the Pettit quadruple case. Note how the shavings are carried away to storage on the sides of the case.

the discard and two more are on the way. As a novelty I shall describe one of the earlier types which we are always intending to remodel, but still use. What we call the M yard contains, as I write, nine boxes each with eight colonies. The hives are placed compactly in a double row in the box with two entrances facing each point of the compass, the end ones having side entrances provided by special bottom-board arrangement. They winter splendidly in these cases, as half of them have only one side which is not next to another colony and the other half have as much of that benefit as in a quadruple case; but the arrangement is inconvenient for obvious reasons, and they are to be discarded next year. Several years before Mr. Demuth's plan of wintering Langstroth combs on end was published, I tested the same principle by placing eight complete brood-chambers on end in a specially constructed case, with thin division-boards between them taking the places of both bottom-boards and covers. Several of these cases were in use at one of the experiment stations in Ontario for two or three



winters. Wintering results were excellent, but again the disadvantages seemed prohibitive. We now gain depth by using the reversible bottom-board deep side up, and in two yards where we used to produce comb honey the wedges are nailed fast to the bottom-boards. The lower space is again increased by the fact that special frame-rests bring the frames up flush with the top of the hive. Finally, over the frame is the bee-space of the feeder-board, which will be described later. Hives having food-chambers are deep enough for all winter requirements.

Every method has some objections which must be weighed against the advantages. At present our preference is divided between a single case left packed all summer and what we have heard gravely called the "quadruped" case, by some who were not up in their Latin. The advantages of the permanent packing in single cases are the saving of labor and storage space, and it is claimed that the equalization of colony temperature increases the honey crop. We have not tested them sufficiently to vouch for the latter claim, but have found that certain of our standard manipulations are made impossible and others are hindered by the presence of the case. Another objection is that when the covers are raised by extra supers, driving rain sometimes soaks the packing on one side, and the covers occasionally blow off. With the expectation of reducing these objections we are making up a number of single cases on an original plan which is not sufficiently tested for publication.

After all, however, the labor of packing and unpacking is not so great as it might seem, if the work is done systematically and the cases go together well. For this we much prefer a collapsible quadruple case made of  $\frac{7}{8}$ -inch matched pine, with stand and floor in one piece containing bottom packing, sides of equal height all around, and a flat roof. We use four inches of packing underneath, six inches on the sides, and a foot or more on the top. The hives are supported by a 2-inch x 4-inch piece and two 1-inch x 2-inch pieces running lengthwise in the cheap. These also support the bridges, and cheap thin lumber nailed on their under sides makes a retainer for the packing. The cases are so placed in the apiary that when the hives are set off on their summer stands almost directly in front of their winter locations they form double rows, alternately facing east and west, with just room for the cases between the rows which back each other. After the cases are piled away this alley provides a safety zone for apiary work. Of course, all parts of the cases are interchangeable, and, as the hives are all supered before unpacking, we would not consider lifting them out of permanently nailed boxes.

It is quite true that these cases are expensive. Still, with the best of equipment, the capital investment in beekeeping is much

less in proportion to the returns than in other branches of agriculture. If well made and painted and given reasonable care, depreciation is negligible, especially with advancing prices of material. Ten years ago we paid \$3.25 each for 35 quadruple cases all made up of  $\frac{7}{8}$ -inch matched pine at the mill. They have been in use ever since, and have traveled some, but with extra nailing and a few patches they would be good for another ten. Even if half worn out they are now worth 50 per cent more than they cost. How shall we figure depreciation?

#### Feed and Feeders.

While September is our month for removing supers, and getting all hives into cases, October is the feeding month. Brood-rearing is pretty well finished by then, and the gathering of inferior fall honey is out of the way. As a final preparation for the long winter siege it is fitting that the winter nest should be well stocked with the best possible food for the Canadian winter—thick syrup made from extra-standard granulated sugar. With colonies warmly packed,



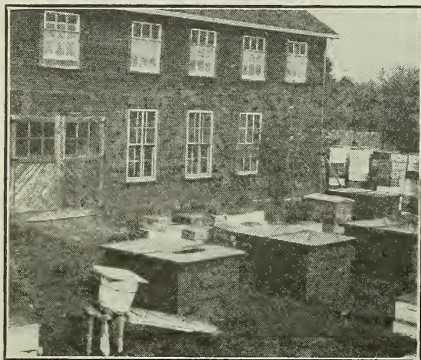
Pettit quadruple case with side removed to show method of applying and packing food pails.

by feeding now instead of earlier, and by giving each practically all it will take, we consider we secure the best results.

To our way of thinking there is only one type of feeders for late feeding on an extensive scale. Ten-pound friction-top honey pails with perforated lids inverted right over the cluster place the supply where it can be taken with the least effort. With hives in cases and the pails themselves warmly packed, feeding may go on without interruption at a season when any other feeder I have tested would attract no notice. On the other hand, if it happens to turn warm when feeding there is no danger of colonies in cases being robbed, and the work of putting on need not be interrupted. Careful owners of small apiaries may criticize our late feeding, and it is true that if practicable we would like to feed all of our apiaries about the first of October, then get into our car, and drive off to Dixie; but as one's business extends the season must be prolonged, especially when reliable help is so scarce. Anyway, I have fed bees experimentally at the Ontario Agricultural College as late as January without seeing any ill re-

sults; but I would much prefer their having a good flight after feeding.

In applying the feed, the pails are inverted over holes in a thin cover of  $\frac{3}{8}$ -inch pine, and planer shavings are immediately packed between and over them. The thin cover with holes for feeding we call a "feeder-board." In spring it is converted into a nucleus-board by covering the holes with wire screen, and later it becomes a bee-escape board. So it is not allowed much idleness, and in our permanent stock list is called a "combination-board." The feeder-board performs a very important function by keeping the bees in place while taking



Building used for central extracting plant, garage, etc., at The Pettit Apiaries. A few quadruple cases are shown.

their feed, and by retaining the top packing which is so necessary in late feeding. Without this packing the bees often refuse to take the feed, and we feel that they ripen it better when they are kept warm.

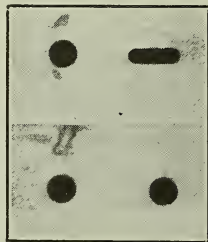
In making syrup for feeding we mix the sugar with steaming hot water in the proportion of two of sugar to one of water and stir until the sugar is dissolved. That is all. With due respect to scientific advocates of an inverting agent such as tartaric acid or honey, we consider the complications introduced by their use greater than their advantage. I believe a mixer such as is used in mixing spray material, or a large barrel churn might profitably be used. We had a 700-pound glucose barrel fixed to revolve and found it had some advantages; but it got out of order, and we have since mixed it with a paddle in two large capping cans which have been resting since the Peterson melter was introduced. The process is as follows: Pour a hundred-pound bag of sugar into the first can, then half its bulk of steaming hot water, and stir enough to prevent caking. Put more water over the fire, continue stirring the sugar, and when the water steams again pour another bag of sugar and its complement of water into the mixer, and continue stirring. Repeat until the first can is full, then fill the second, coming back to the first occasionally for more

stirring. The time required depends largely on the facilities for heating water. With a cook stove one man melts 1400 pounds of sugar, which is the capacity of the two cans, in from seven to eight hours, and chops his wood from rubbish during that time. The feeder pails are filled by dipping so as not to stir up the small quantity of sugar which settles.

The pails, whether full or empty, are stored and handled in the same type of crates used for shipping honey, six pails in each. This makes a convenient unit for carrying, loading on trucks, etc. With proper care they will last for years. We have some that have been in use for eight years and are still doing duty. Their worst enemies are rust and the boy who removes lids carelessly, jamming them on the edges of the pails, causing leaks. Rust is caused mostly by leaving them on the hives too long after they are empty, until they condense moisture inside from the brood-chamber. It soon destroys the bottoms, and we are now treating all our pails inside with a thin coating of wax slightly softened with grease.

The rule in putting on the feed is to give each hive four pails. This may be varied by giving fewer to weaker colonies well stocked, or more to stronger lighter ones. This year after a particularly dry summer two pails were given to each colony not having a food-chamber, at time of putting into cases in September, then all were given four in October whether they had a food-chamber or not. Last year we were so fortunate as to foresee a sugar shortage and bought our supply in May. One week after putting on, the pails are removed, together with whatever syrup has not been taken, and it is amusing to see how colonies which cannot take all their feed sometimes seal up the perforations in the pails as if to save the remainder for future reference.

As mentioned above, the feeder-boards are left in place all winter except where food-chambers are used. They are covered



The Pettit "feeder-board."

first with the regular hive-cloth, then with several thicknesses of newspapers, and finally with planer shavings well pressed down. We consider that this gives some upward ventilation, in fact, quite enough where bottom packing is used. In some older cases



which have no bottom packing, greater care is taken to have the cloths porous and the papers plentiful, with the idea that papers will conduct moisture away while retaining heat. A large percentage of the top packing is contained in burlap sacks loosely filled and sewed. At the first examination in spring all loose packing over the hives is removed and stored; then by lifting out the sacks the hives are easily accessible for further manipulations.

#### Shelter from Cold Winds.

With reference to shelter from cold winds, we consider this almost as important as the packing itself. Without going to extremes and getting into hot spots where the bees "swarm their heads off," we try to select locations fairly sheltered from prevailing winds. Barring this we put up a portable wind screen about eight feet high, made of plastering lath nailed not too closely on frames six by eight feet.

After the bees have been prepared in this

way, with careful attention to all details as outlined above, they require nothing further until warm days come in April. Even then they might safely be left until breeding room is needed in May; but since we are here, and since the food consumption of colonies vary so, we look them over to take care of any that may have nearly exhausted their stores. To all such a liberal supply of feed is given as in the fall, but, of course, in smaller quantities. A few queenless colonies are also detected at that time. The percentage of colonies that die out or are much weakened in winter or spring is very small indeed.

The wintering of bees in Ontario is no more uncertain, and requires less labor than the wintering of sheep, hogs, or any other live stock. It is simply a matter of starting with healthy, vigorous individuals and then providing the necessary food, shelter, and other care.

Georgetown, Ontario.



**G**LEANINGS' office was recently favored with a visit from Professor Emilio Schenk, who is now traveling on a five or six months' trip for the Agricultural Department of Brazil. He expects to spend several months in the United States, studying our methods of beekeeping and fruit culture. While here he is visiting many of our most extensive beekeepers. Those who are fortunate enough

## A REMARKABLE BEEKEEPER

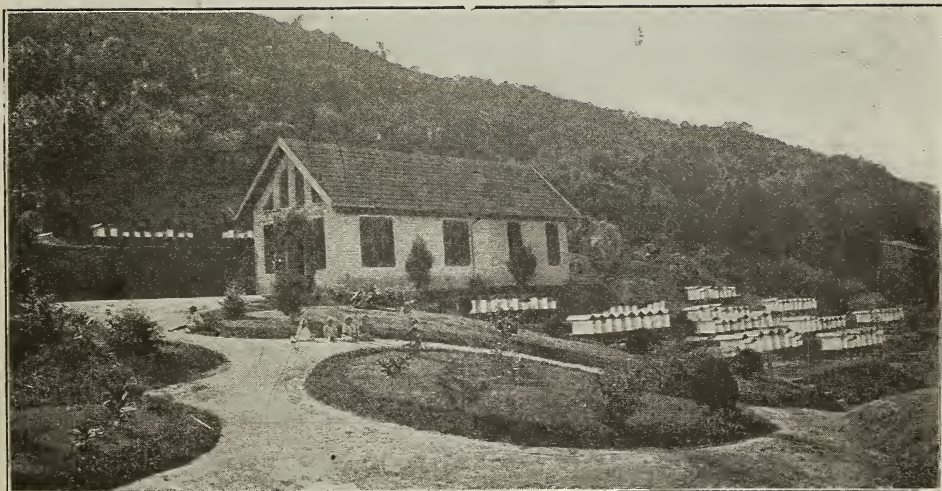
*Prof. Emilio Schenk, Now in this  
Country, Has Worked for 24 Years  
in Brazil Promoting Beekeeping*

By the Editor

to have the privilege of entertaining him will thoroly enjoy his wide-awake enthusiasm. It is quite refreshing to meet a beekeeper who has kept bees all his

life and yet retains so keen an interest and so great an ardor for the work.

The zeal which sends missionaries into foreign fields is no greater than that which Emilio Schenk tells of impelling him to work for less than nothing for years in or-



The apiary at the agricultural college in Porto Alegre, Rio Grande do Sul, Brazil.

der to spread better beekeeping methods among the Brazilians. In fact, he has been called a missionary beekeeper.

#### Starts a Bee Journal.

In 1896 he came from Germany to Curitiba, in the State of Parana, Brazil, where he found bees but no good beekeeping. On finding that the people had no understanding of the care of bees, he immediately established a modern bee-yard and organized a beekeepers' association. He also began a bee journal, "Brasilianis che Bienenpflege," which is still published. Altho he sometimes had as many as 500 subscribers it is of interest

nies, yet some kept over 100. But, no matter how many there were, all were neglected and only the most primitive methods employed. To obtain the honey from the combs, the combs, brood and all were simply squeezed in the hands.

Prof. Schenk took with him small models of a hive, smoker, and extractor, in order that he might more easily explain better beekeeping. All of this was a decided novelty to the Brazilians, and wherever he stayed over night the farmer's family would all crowd about him as he explained beekeeping. In case they became convinced of his



The Brazilian Beekeeper, Emilio Schenk, and His Big, Fine Family—a la Roosevelt.

to know that the first year only five paid for the journal and the second year only 25.

#### Travels Among the Farmers.

Finding he could not reach as many farmers as he would like by means of his journal, he went to the State of Rio Grande do Sul in 1900, and also the State of Santa Catharina and began traveling among the farmers themselves. This traveling was by mule, and there were numerous hardships to contend with. Often he went hungry, and, in many cases, his advice and help were not wanted and his motives were regarded with suspicion. Prof. Schenk relates that it was incomprehensible to many that he should do good at such cost to himself, expecting no returns.

The farmers often had but a few colo-

nicity he was allowed to remain and together they would make the hives and build up the apiary. During the three years that he traveled in this way he instructed the farmers in the care of their bees and installed for them 500 modern bee-yards of from 20 to 300 colonies each.

#### His Educational Methods.

The first edition of his bee book, "O Apicultur Brasileiro," was published in 1901. It has now reached the fourth edition and is published in German, Portuguese, and Italian.

The first exposition for beekeepers he held in Porto Alegre, R. G. do Sul, in 1901, securing all the exhibits from his own apiary. This exposition was so successful that it was



followed by others, in which the farmers also took part.

All the work of building up the beekeeping industry to which Prof. Schenk devoted himself for these first 15 years after arrival in Brazil was carried on at his own expense. His services were free and his expenses paid from his income derived from his own bees, and whenever this income fell short he was obliged to borrow.

At the end of these 15 years, in 1911, the Federal government of Rio de Janeiro and the State government of Rio Grande purchased his bee book, and in the same year he was employed by the Department of Agriculture in Rio Janeiro, as Professor of Beekeeping. In this capacity he was sent out to hold meetings and conferences among the farmers. During the last four years he has served as Professor of Beekeeping in the State School of Agriculture. This school has a four years' course, and in the last year all the pupils are required to study apiculture. In the accompanying illustration will be seen the modern bee-yard which he has established for the students.

Whenever Prof. Schenk has been occupied with other work, his family have always managed the bees during his absence. The oldest boy, Arthur, who is now seventeen, is a very good beekeeper and easily manages 300 colonies, together with poultry-raising; but, of course, has assistance in the work. Prof. Schenk tells us that his family, composed of Prof. and Mrs. Schenk and the nine children, uses 600 pounds of honey annually.

If all the families appreciated honey as much as this family does, we would hear no talk of the need of developing a market.

The hive he uses is rather small, about 10 inches square, and 12 inches in height. He prefers this shape because, he says, such a size more nearly conforms to that used in trees by bees in the natural state. During the past three years there has been considerable loss from what Prof. Schenk believes



Mr. Schenk explaining modern beekeeping to visiting farmers.

to be Isle of Wight disease. He says he has lost as many as 200 or more colonies in about three weeks. A little later Mr. Schenk himself may tell us more concerning beekeeping methods in Brazil.



**G**EORGE B. Larinan of Pasadena, Cal., is one of the most extensive producers of orange and sage honey in California. He has his apiaries covering a wide range of territory, and, what is more, is one who seems to be almost uniformly successful whether the seasons are good or not. As I have formerly pointed out, no one can succeed in producing orange honey unless he knows how to winter well and have good, strong colonies at the beginning of the orange flow, and Larinan is that sort of man, judging by what I hear. He also believes it pays to have all the latest apparatus for extracting and anything else that will save human labor. Furthermore, he has his work systematized so that everything moves along without hitch or break.

Like many other beekeepers in California, he takes every precaution possible against the inroads of foul brood, particularly the American type, even tho he is not supposed to have it. One of the means to that end is

## FOUL BROOD PRECAUTIONS

### *Robber-cloth Used and Supers Returned to Their Own Hives*

By E. R. Root

turned to the hive whence they came. By the scheme that he uses, this is very simple and easy. If at any time foul brood breaks out in the apiary it will be largely confined to the same set of hives and supers all on one hive-stand. This is precisely the practice advocated by Dr. Phillips.

Some beekeepers in California do not believe there is anything in this. They claim that a foul-broody comb would infect the extractor, and that, therefore, the extractor would in turn infect every set of combs in the apiary. While this is true, the chances for spreading the disease are very much less when the supers are put back on the hive whence they came. Many of the leading beekeepers of California practice this plan. To say the least, it is a wise precaution.

The figure here shown illustrates two of

to number all his hives and supers. When he comes to the extracting season the supers are taken off the hive, wheeled to the extracting-house, extracted and then re-





Two of G. B. Larinan's helpers taking honey off the hive. The supers are numbered with the hive numbers. All his work is planned so as to have all supers with their combs go on the hive whence they came. It will be noted that the robber-cloth, as shown just at the left of one of the workers, is constantly used. The object, of course, is to prevent the spread of foul brood if present. It will also be noted that the men are wearing Alexander veils. The Alexander, or some type of wire-cloth veil, is in almost universal use in California. The building in the background is the extracting-house with walls of galvanized iron. This is the prevailing type of most of the extracting-houses in California.

Mr. Larinan's helpers outside. One man shakes and the other brushes, the shaking being done inside of the super. It will be noted that the super on the wheelbarrow is covered with a robber-cloth. It is Mr. Larinan's policy not to have combs exposed any more than is necessary, and thus to prevent the spread of bee disease. When the wheelbarrow has two or three supers of comb it is pushed up to the extracting-house shown in the rear. The door is opened and immediately closed, when the combs are extracted. The boys then return for another set of combs; and when they come back again they get the previous set and carry it back to the hive to which it belongs. Mr. Larinan himself does the extracting while the young men outside do the heavier work. In other words, Mr. Larinan pursues the policy of saving himself as much as possible, as every beeman should do when he not only has to use his muscles but also his brain.

#### Wire-cloth Bee-veils Almost Universal in California.

It will be observed that the two men are wearing Alexander bee-veils. Solid wire-cloth veils, or veils with wire-cloth facing,

are in almost universal use in California. They are more substantial and more sting-proof. Let me tell you, dear reader, that bees can and do sting in California; and nowhere, except on one occasion, did I find a beeman in the State who would go without a veil, and that is my friend C. F. M. Stone. For some reason the bees do not seem to sting him. I noticed they would sting me a dozen times when they would not sting him once. I conclude the difference is in the **smell** of the "beast." There must be something in the name, as a stone has no odor, and a root may be sweet, bitter, or aromatic.

Joking aside, there is no question but that one who perspires freely will be stung much oftener than one who does not. Sweaty horses are much more liable to be attacked than those that are dry. Formerly I believed that it was the **behavior** and not any personal odor, because bees will sting some persons more than others. But I have changed my mind. Of course, if a person is stung once he is liable to be stung again shortly. This is on account of the odor of the sting that seems to call for more stinging.



## NEW FOUL-BROOD PLAN

### Eliminates Shaking in Transferring and in the Treatment of American Foul Brood

About five years since I made a cage, with the idea of transferring bees from box hives quickly and without cutting out the combs. It was a success from the start. I got all the bees and queen out quickly. The cage was made thus. I took the bee-escape or honey-board and cut a hole in it 4x6 inches and made a wire cage as large as the honey-board and eight inches high. To transfer a colony, remove the hive from the stand a few feet, put the new hive where the old one was, remove the top from the old hive, and place the honey-board as described on the hive with the wire cage in place. Get the smoker well started, put in it about one tablespoonful of carbolie acid, and smoke freely in the entrance of the old hive. The bees with the queen will soon be in the cage. Now remove the cage with bees in it to the new hive on the old stand. If they are slow in going down in the new hive, shake them gently off the honey-board and then out of the cage. The carbolie acid in the smoker puts everything out of the old hive in a rush. After the successful use of the cage in transferring it appealed to me as a good plan to use for foul brood to eliminate the shaking, as we well know the shaking plan in the hands of a careless operator will spread the trouble more than check it. I have used this plan in and about Wichita for several years. Bees are not so apt to abscond and the honey and the brood in the diseased hive can be removed and burned without spilling a drop of honey.

So much for the old or cage plan; but I have it beaten by my new plan, which is as follows: First, place the new hive where the old hive formerly was located (to be sure, the old hive must be removed first); next, arrange the old hive with alighting-board touching alighting-board of the new hive (except in cases of severe brood trouble, when I leave about two inches of space between, with a thin piece of board put on the two for the bees to walk across on). Leave the top and the sides open, and the bees will go across if handled right, and if a few do take flight they will alight at the new hive on the old stand. Have both entrances open the full width of the hives. Slide the cover of the old hive forward about two inches and smoke in the back of the hive at the top—not too much smoke (most of our beekeepers and many of our inspectors use too much smoke). This smoking will crowd the bees in front of the hive, and, when well started across, the volume of smoke can be increased. Some of our inspectors say they

shake one frame or scoop up about a pint of bees and place them on the alighting-board of the new hive, thinking it helps to start them across. I have never found it necessary to try this plan, as they go for me and go quickly. I would advise plain smoke, no carbolie acid. One can very quickly make a colony very stupid and dull with too much carbolie acid. We have some inspectors here who killed thousands of bees with the cage plan the first few times they tried it, just because they used carbolie acid too strong and smoked too freely. The hives should be properly placed, and there should not be too much smoke to start with. I demonstrated both plans in transferring and in treatment of foul brood at the field meeting at Nickerson. Also at the State field meet at Manhattan where they have neither box hives nor foul brood, I put a colony in a new hive for demonstration. While both plans are a great advantage over the old shaking plan, the new one is much superior to the cage plan and is all-sufficient for transferring also. We know the plan works, as we have ten inspectors out here all using the plan successfully. There has been no complaint from any of them, only very flattering praise. It is safe to say there will be no more shaking for foul brood in Kansas.

Wichita, Kansas.

O. J. Jones.

[We have tried this plan and find it works successfully. The only possible drawback we can see is the fact that a few of the bees take wing and, since the smoking causes some of them to fill up with diseased honey, if the hives are close together, there is a chance that a few, confused by the old hive being placed directly in front of their entrance, might enter near-by hives and thus spread the disease, just as they sometimes do when applying the shaking treatment. In comparison with the shaking plan, however, it seems to us this new plan is greatly to be preferred, since there is no possibility of exposing diseased honey where other bees may obtain it and so spread the disease. We are glad Kansas is giving the method so good a trial.—Editor.]



## PREVENTION OF AFTER-SWARMS

### Dr. C. C. Miller States Objections to Plans Given in Previous Issue

Just how to allow a colony to swarm once and no more, allowing the old queen and a great majority of the bees to remain at the old stand, is a thing that many a beginner would like to know. In *Gleanings* for June, on page 352 and on page 356, the matter is discussed. I'd like to keep good friends with C. E. Deneen, and Editor Root, as well





## FROM THE FIELD OF EXPERIENCE



as Miss Fowls, but I cannot help asking: "Good friends, haven't you loaded down the plan with some things that really don't belong to it, and which will be likely to scare away the beginner from attempting to use it?"

By this time some beginner will say: "Please tell us what is the plan you are talking about." Well, if any beginner should ask me to tell him how to proceed to prevent the issuing of any and all after-swarms after the issuing of a prime swarm, I should say: "Hive the prime swarm and set it on the old stand, setting the old hive close beside it, facing the same way. A week later move the old hive to a new stand distant six feet or more." There it is in 38 words, if my counting machinery is in good repair. And the extra things you have added to it don't improve the plan, but are rather a damage to it.

I don't know who devised the plan—I wish I did. Certainly it is none of my devising. But there is good reason why the plan should work well, and in actual practice I think it has proved generally successful. Let us look at the philosophy of its working. In a normal state of affairs, a prime swarm issues about the time the first cell is sealed, and eight days later a virgin issues with the first after-swarm. This virgin likely issues from her cell a day or so previous to her swarming, or a week after the cell she has occupied is sealed over. On issuing from her cell, this virgin makes it her first business to go about and murder in their cradles all her royal baby sisters. Yet if everything is in a prosperous condition the workers stand guard over these royal babies, preventing their destruction, and the murderous princess goes off in a huff with a swarm.

If, now, at the time this first virgin issues from her cell, the hive which contains her is moved to a new location, all the bees which go afield will upon their return home go, not to the old hive, but to the old spot where it stood, and will join the swarm. Thus not a drop of honey will be carried into the old hive, and the bees, discouraged by such a state of affairs, will conclude they cannot afford to swarm, the royal babies will be left to the fierce wrath of their elder sister, or else they will emerge from their cells to battle one another till only one is left.

You see that so far as the beekeeper's part is concerned the thing is very simple. He has just two things to do: first to set the swarm pretty much on the same spot as the old hive; second, to move the old hive to a new spot a week later. It doesn't matter whether the old hive is put to the right or the left of the swarm, and possibly better than either is to put the old hive on top of the swarm. The point is to get the fliers


at the psychological moment to desert the old hive and join the swarm.

Now let us consider some of the frills our friends have added to the plan. First, Editor Root says, page 352, "the plan of placing the old hive beside the new one, on the old stand, and tearing down all capped queen-cells and seven days later moving the old hive to a new stand." If I understand correctly, that adds to the regular plan the extra work of killing all capped queen-cells on the day of the swarming. Wouldn't that in many cases double the work? And what would be gained by it? The capped cells being killed the bees would continue the uncapped ones, and a week later there would be a number of sealed cells, but no virgin out of its cell ready to destroy the other cells. By the time the first virgin does emerge, the colony will have recovered from its shock, a force of bees will be carrying in honey, and its dollars to doughnuts that a swarm will issue, the killing of those sealed cells being the very thing to knock the whole thing endwise.

On the same page Mr. Deneen says we should look at the cells after the swarm has issued, decide by their appearance the time when the first virgin will emerge, and shift the old hive at just the right time to get in her murderous work without interference from the workers. His theory is all right, but will it be an easy thing in all cases for the beginner to carry it out in practice? He assumes that conditions may be such that the shift should be made in four days, or such that it should be in eleven days. And of course any time between four days and eleven days. (There's a chance for some skepticism about that eleven days, but never mind that.) The difficulty in deciding as to the age of the occupant of the cell is so great, and the work involved is so much, that I think I would rather shift all at the end of seven days, and then if "one in four or five would send out an after-swarm I would hive the after-swarms and unite them where they would do the most good. Altho Mr. Deneen's way might be easier for him, I don't believe it would be for me.

On page 360 Miss Fowls says: "All but the best queen-cell are torn down, and the old brood-chamber..... is placed beside the new hive, with its entrance in the opposite direction so that the returning swarm will be prevented from finding its entrance and will, accordingly, enter the new hive on the old stand. During the following week the old hive is gradually turned about, moving it a little each time until at the end of the week it is close beside the new hive and facing in the same direction." Now 'fess up, Iona, honest Injun, isn't that something you never put in practice, but merely repeat what some one else has given? What's





## FROM THE FIELD OF EXPERIENCE



that? "A large part of what I say is entitled to quotation marks." Please don't be disagreeable, but go on with what we were talking about. You are giving the Heddon plan, which I must say is likely on first acquaintance to appeal to one. The theory is that by having the old hive at first face backward all the old bees will go to the swarm. So they will. Then by gradually turning the old hive about the bees it contains will follow its entrance. You say "moving it a little each time," but don't say how often. I think Heddon said "each day once." That would mean six extra moves, and what have you gained by it? At the end of the week the hive is just where it would have been if you had set it there in the first place without the daily moving afterward, the only advantage being that you have more honey in the new hive and less in the old. Maybe you will think that pays for the six movings and maybe you won't. At any rate, in either way all the field bees will join the swarm at the end of the week; and that's what you want. You say "all but the best queen-cell are torn down." I don't think Heddon gave that, but it's a frill of your own or somebody's else. But why do it? The whole gist of the plan is to get the bees to tear down the cells, and here you are taking the job out of their hands. And if you're going to do the job, why not shorten it by setting the old hive in the first place at a distance and then killing the cells?

Now if you three have anything to say in defense of your wicked course, come on, but please come one at a time.

C. C. Miller.

[That is right, Dr. Miller, get right after us whenever we need it. Knowing that you are on our trail makes us more cautious in our statements.]

In regard to the plan given by Mr. Deneen I (not Mr. Root) have plainly misinterpreted his meaning in the comment suggesting the tearing down of all capped cells, for that would make it certain that no virgin could issue with a swarm for eight days, and probably not at all. Since he found as many as one in four or five issued, he evidently did not take this wise precaution. You say that the "prime swarm issues about the time the first cell is sealed and eight days later a virgin issues with the first after-swarm." So it is clear that if only capped queen-cells are torn down when the swarm issues the first after-swarm will be delayed a very short time, only the length of time it takes to cap a queen-cell. So why worry about so short a delay? But we all know there is no certainty as to the exact time of the issuing of the first swarm; the time may vary several days. In case some queen-cells had been sealed several days when the first swarm issued, then, of course, tearing down the capped cells would cause a longer delay,

but even then the time between the first and second swarms would be about the same as in the case of a swarm issuing as soon as the first cell was sealed. It seems to us that if colonies always swarmed when the most advanced queen-cell was at a certain stage in its development, then a rule might easily be given as to the exact time the old colony should be moved in order to get the fielders to desert the old hive at "the psychological moment," but unfortunately swarms do not issue with any such regularity in regard to the age of the most advanced queen-cell. To be sure it is more trouble to tear down those capped cells, as we suggest, but it prevents the possibility of after-swarms before moving away. After being moved away, with the consequent loss of fielders, we believe no one need have fear of after-swarms. So much for theory and now for actual practice. This same feature which Dr. Miller criticises, we employ in the plan we use and yet do not remember having had an after-swarm for years.

As we stop to think of it, our plan is practically the same, only we put the old hive above the supers on the new stand instead of beside the new hive. We tear down all the capped cells and seven or eight days later move the old hive to a new location. For us the plan works finely.

In commenting on "Talks to Beginners," Dr. Miller asks why we do not set the old hive in the first place at a distance and tear down all but the best queen-cell. Now that is exactly what we do in case a swarm issues in spite of the swarm-prevention plan given on page 359 of the June Gleanings, and that is the plan we also gave on page 361 of the same issue; but you see in the plan we gave, page 360—the plan which Dr. Miller criticises—we were telling the beginner how to keep together as large a working-force as possible in order to obtain the most comb honey from a colony that is inconsiderate enough to swarm. Now, altho my father used the plan with success years ago, we frankly admit that we do not now use this plan because we are not beginners and we are handling more than two or three colonies. If we were handling only one or two colonies, and if we wanted as large a surplus as possible from the colony, we would probably use the plan in question. We certainly would not leave the old hive with entrance beside the new one, even altho Dr. Miller and other good authorities recommend it; for, in order to get as much honey as possible in that new hive, we want all the returning swarm to enter it. To have those bees in that hive one week later would not satisfy us; we want them there without delay, the same day they swarm. When I was a child and my father allowed natural swarming, I used to hive swarms when I was not strong enough to lift the old hive and supers of honey, and I accordingly swung



## FROM THE FIELD OF EXPERIENCE



the old hive about one of the lower back corners as an axis and then placed the new hive on the old location as nearly as I could. I very soon found that if the entrances were near each other, many of the swarming bees on returning would swell the numbers in the old hive, just where we did not want them. And, many times, most of them that did enter the new hive would soon leave it and join the bees in the old hive, even deserting their queen to do so. So I learned that in order to get the bees in the new hive where they belonged, the entrance of the old hive should be out of sight of the returning bees. Usually, facing the entrance in the opposite direction was effective.

Let us admit again that the way Dr. Miller suggests would be much easier for one who does not care to handle bees more than is necessary. Yet we were not attempting to give what we consider the easiest way for the beginner, but rather what seemed to us the safest and best way. That is also the reason we advised tearing down "all but the best queen-cell." If no queen-cells are destroyed by the beekeeper, then when the first queen hatches the other cells will be torn down; but unfortunately the first queen to hatch is not always the best one, therefore we prefer to choose between them in case we are not too crowded for time. True, some of these so-called "frills" may take more time and work, but all the better; the beginner will graduate from the beginner's class just that much sooner.—Iona Fowls.]



### IT SOLD HIS HONEY

How an Arizona Beekeeper Did Just What Other Beekeepers Can Do

Spasmodically there is a flare-up of talk on the subject of educating the public to the use of honey. The bee journals often point out the necessity for local and national advertising. However, the average honey producer knows little or nothing about how to go about it. He knows how to produce a first-class article of commerce; but just how to produce a healthy demand for that article he seems to be at a loss.

Last fall I faced the necessity of disposing of a larger crop of honey than usual. I was also faced by the fact that my local market (three thriving mining towns) was using little or no honey at all. Owing, perhaps, to the recent sugar shortage which forced many people to the use of honey, my former customers seemed to have foresworn honey altogether. I decided to whet the local appetite by a newspaper advertising campaign. In this I was favored by the fact that the territory was well covered by the local daily.

I accordingly contracted for a four-inch space in the paper, the copy to be changed

daily. Simultaneously with the appearance of my first ad the editor gave me a column write-up on the front page. This story was a sample of how the newspaper reporter can, but seldom does, write up the bee industry to our profit. I submit two of the ads as samples of how to advertise honey locally:

### MY WIFE SAYS

"Dad, the bees have done fine. Now you get out Old Lizzy and go up and tell folks through the News that Woodruff's pure honey is now ready for the festive flapjack."

When Ma says anything she usually gets action. So here you are, folks. Just ask your grocer for Woodruff's Pure Honey. It costs only two bits a pound, one-third the price of butter and makes a better spread. It is put up in new bright, 2, 5 and 10-pound cans. If your grocer hasn't it, drop a postal to

**Woodruff, the Honey Man  
COTTONWOOD**

### HOLLOW CLEAN TO THE TOES

Yes, that's the way Jimmy and Mary are when they come home from school. "My gracious!" exclaims Ma. "What shall I fill those kids up with? Butter costs six bits a pound and they don't eat dry bread."

Why, dear woman, just smear that bread with Woodruff's Pure Honey. They will like it better than butter and it will build just as much brain, bone and brawn. It costs only one-third as much as butter.

**Woodruff, the Honey Man  
COTTONWOOD**

Whether deservedly so or not, the ads produced quite a little talk, and, what is more to the point, they produced honey sales. The following editorial squib in the daily paper gives the facts very succinctly:

"It recently occurred to W. E. Woodruff that if advertising would sell clothes, belting, hairpins, molasses, tires, automobiles, candy—any article you care to mention—it would sell honey. So he evolved a series of simple, homely talks to people about honey, a subject of which the general public is almost totally ignorant. While he advertises honey in general he never forgets to mention Woodruff's. The results are simply wonderful. Grocers throughout the Verde district report that customers never call for just 'honey' any more—they call for 'Woodruff's honey.' And they are selling more honey than they ever sold before, too."

Any of Gleanings' readers are at liberty to use the ads given here. If they can make better ones, fly to it. W. E. Woodruff.

Cottonwood, Ariz.



I WISH every person who puts up extracted honey for market could or would read that editorial (page 458 in August Gleanings), warning extract-

ed-honey producers to avoid some of the present slipshod methods of putting up their honey in poor boxes and in yet poorer tin cans. One who has not bought or handled such packages can not realize the disgust of the buyer or the actual loss that comes from the use of such inferior packages. A good point is made when the writer says: "If the producer will pay out a little more for good containers, the buyer will be more likely to pay more for the honey. Good containers have a salvage value, while poor ones are often worse than junk." Just so. We have quantities of poor cans, and the only way to dispose of them seems to be to knock holes in them and throw them into a lake or pond. We dare not dump them on land for fear of scattering disease.

Good new cans that have never been used before we can sell for a fair price. We had a call from a very careful (and I might almost say fastidious) beekeeper for such second-hand cans a short time ago, and after receiving them he ordered again.

\* \* \*

J. L. Byer says, on page 477, it is hard to understand the difference in the flow of nectar in different sections or countries. The reason for the difference in the flow of nectar in different sections or in different years or on different days is a fascinating subject and one that none of us fully understand. If one is anxious to sustain a reputation for wisdom, it is better for him to look wise and say nothing. I have given the subject a good deal of thought for more than 50 years and am free to say that I know but little about it. Of course, if it rains or is extremely cold, or the earth is parched with drouth, we get but little nectar; but, aside from these conditions, who can tell?

One year the flowers yield well if the wind is south, but little if in the north. The next year the direction of the wind seems to make little difference to the nectar flows. One year a thunderstorm will check the flow or entirely stop it, while the next year it seems to make little or no difference. Forty years ago this very season there was an unusual basswood bloom. For two weeks the bees gathered little from it. Then there was a change and nectar seemed about as plentiful as it well could be, and in the next five days they filled their hives and stored considerable surplus.

\* \* \*

The "Onward March of Alsike Clover," page 458, is of decided interest to those of us who depend wholly upon clover for our

## SIFTINGS

J. E. Crane

surplus honey. While it has not proved a great success on sandy or gravelly soils, it has made good on all clay or strong soils, and too much can not be said in its fa-

vor. It seems hardly possible that a plant almost or quite unknown in the United States 70 years ago should be so generally grown for hay today, or that a plant of such exceptional value should have been so late in being brought into cultivation.

The Rev. L. L. Langstroth, writing in 1853 (that is 67 years ago now), says: "For years I have attempted to procure thru botanists a hybrid or cross between the red and the white clover, in order to get something with the rich honey-producing properties of the red, and yet with a short blossom into which the honeybee might insert its proboscis. . . . I had hoped to procure a variety which might answer all the purposes of our farmers as a field crop. Quite recently I have ascertained that such a hybrid has been originated in Sweden, and has been imported into this country by B. C. Rodgers of Philadelphia. It grows even taller than red clover, bears many blossoms on a stalk, which are small, resembling the white, and is said to be preferred by cattle to any kind of grass, while it answers admirably for bees." It is interesting to note that what Langstroth longed for had already been originated by the hand of the Creator, or something better, for a cross between the red and the white clover would doubtless have been seedless or nearly so, while alsike clover seeds abundantly.

\* \* \*

Traveling by auto some 75 miles a few days ago to the north of the State, it was just fine to note the growing crops, and the second bloom of white and alsike clover as well as sweet clover near the roadside. At one place the air was filled with fragrance. I thought at first it was alsike clover, but it seemed denser or heavier. Upon turning to look I saw a field of sweet clover in full bloom. In another place I saw a pasture of sweet clover. My! But didn't it look good to see cattle feeding, with the clover up to their ears.

\* \* \*

E. J. Ladd, on page 476, reports the clipping of the queens to get a supersedure. We have many times found a queen, with a useless leg or a minus leg, that her children had had the good sense to retain. It would seem that they were wiser than those beekeepers who would cripple them.

\* \* \*

It seems probable that the honey crop in Vermont will not be more than one-half that of last year. There will be a smaller yield per colony and not more than 60 per cent of the colonies kept a year ago.



HERE, if that title does not cause every up-to-date beekeeper to sit up and take notice, then I do not know beekeepers. A year and a half ago, in Our Food Page, I made the statement that there are vitamins in honey and thereby started something. Among the many letters it called forth was a particularly nice one from England, and there were some doubting articles in other magazines. One scientific beekeeper cautioned the editor of *Gleanings* not to let Stancy Puerden say too much about vitamins in honey lest she should have to "back water" in the future, which would be embarrassing.

While I was just as sure as I am now that honey contained vitamins of some sort I did not, at that time, have proof sufficient to convince those doubters "who are from Missouri." I had just reasoned it out that as vitamins seem to be in practically all natural foods they must be in honey. Nature does not make blunders of that sort, and I had asked several eminent chemists and dietitians, and they assured me there could be no doubt of the fact. Further evidence was the large amount of unsolicited testimony as to the value of honey as a food, particularly as a sweet beneficial to invalids and children.

At last we have proof that there is a moderate amount of the fat-soluble vitamin, called Fat-soluble A in comb honey, and it is probable that there are small amounts of the vitamin, Water-soluble B in all honeys, but no anti-scorbutic vitamin.

The Fat-soluble vitamin, you will recall, is the one which is often alluded to as "the growth principle," and which is contained in abundance in the fat of milk, the yolk of eggs, and in green, leafy vegetables. Incidentally, McCollum, of Johns Hopkins University, who has conducted so much research along this line, considers Fat-soluble A of the utmost importance in the diet. Being much less widely distributed in foods than Water-soluble B there is much more danger of a deficiency of it in the diet.

Many of you may not know that the presence of these tiny dietary essentials, generally termed vitamins, is not determined by chemical analysis. For that reason they are frequently alluded to as unidentified dietary essentials, and their presence or absence in foods is determined by a long and expensive series of feeding experiments upon animals, the animals often being white rats or guinea pigs. The diet of these little animals is somewhat similar to that of human beings, and their natural span of life is short enough to permit of conclusive experiments being conducted in a comparatively short time.

## VITAMINES IN HONEY

Stancy Puerden

The man who conducted the feeding experiments to determine the presence of vitamins in honey this past year is Philip B. Hawk, Ph. D. of Jeffer-

son Medical College, Philadelphia. For years he has been experimenting upon the digestibility of various foods by a new process of watching the digestion at different stages in human beings, and he has also been doing research work on vitamins. He is a contributor to scientific journals and is very well known to the general public for his contributions to the "Ladies' Home Journal." Even if you do not happen to remember his name you will doubtless recall the series of articles he wrote several years ago on the digestibility of certain foods, and more recently for his article on vitamins. The results of his experiments with honey will be published in some scientific journal, a notice of which will appear in *Gleanings* at a later date.

WHITE rats were the animals chosen for the experiments to determine whether there were present in honey the vitamins Water-soluble B and Fat-soluble A. The first work was done in testing honey for the former. Rats were selected and divided into three groups, the rats from each litter being distributed to make the groups as uniform as possible. These were kept in sanitary cages with an abundance of water. One group was fed a diet known from previous experience to contain all the essential nutrients except the Water-soluble B vitamin, in which it was deficient. Another group was fed the same diet except that a blended, extracted honey was added to it. Still another group was fed the same diet with the exception of extracted clover honey added.

These two latter diets were known to contain no water-soluble vitamins except such as might be contained in the honey. The individual rats in these groups were carefully weighed each week and records kept of their weights.

At the end of four weeks the diets were changed so that the rats of group 1, which had received no honey, were subdivided into two groups, half of which received blended honey and the other half white-clover honey. The rats of the other two groups, which had been receiving honey, now had this replaced by a starch.

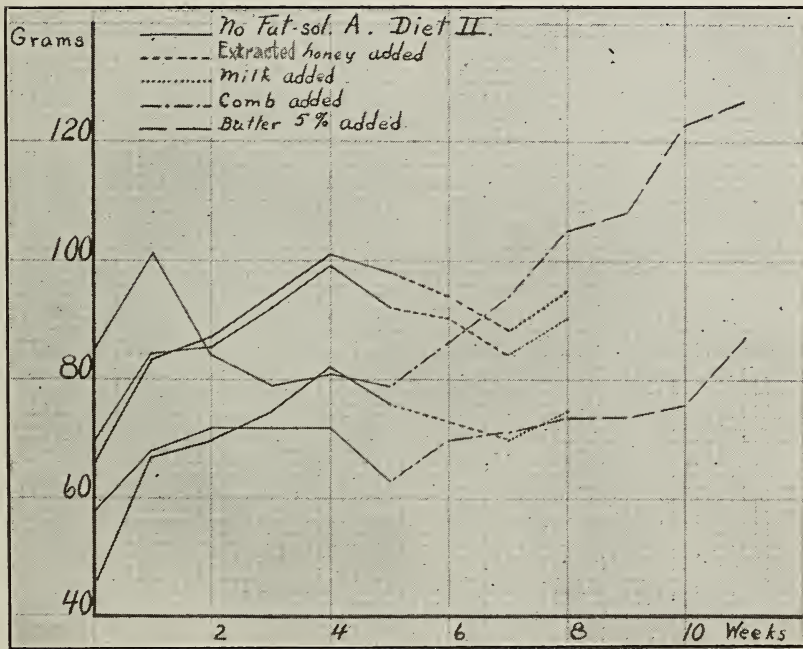
After another two weeks another change in diet was made, which consisted in replacing all these previous food mixtures by milk, which was known to be adequate for growth and to contain Water-soluble B. This was to show that failure to grow had been due to a dietary deficiency and not to disease or other accidental causes.

Now as to results: None of the rats on these three diets first mentioned was able to thrive and grow in a normal manner, and therefore all three diets were deficient in the Water-soluble vitamine. Apparently, therefore, neither the blended honey nor the white-clover honey contained sufficient Water-soluble B to permit normal growth when they were present in the diet, nor to permit the resumption of normal growth when they were added to a diet containing none of this vitamine.

However, while the addition of extracted honey to the diet did not permit normal growth it did slightly increase the growth, so that at the end of five weeks, in the case of one group there was a difference of 9 grams between the "starch rats" and the

in the country. He says: "Of the eight rats fed comb honey, all but one showed a cessation of decline and distinct gains in weight. The one rat was apparently beyond recovery by dietary change. In fact, all the rats given comb honey were already showing indications of the dietary deficiency. Comb honey showed a resumption of growth in these animals, indicating the presence of distinct amounts of Fat-soluble A.

"For comparison the comb honey diet was followed by one containing butter in amounts of 5 to 10 per cent. Butter is known to be rich in the fat-soluble vitamine. Hence, the fact that the rats grew about as well on comb honey as where 5 per cent of butter was added indicates that comb honey contains a moderate amount of fat-



"honey rats;" in the other group the difference between the "starch rats" and the "honey rats" was 17 grams in favor of the honey.

To quote Professor Hawk's own words, "The differences were not great enough to be entirely conclusive, but may most reasonably be considered to indicate the slightly greater efficiency of honey for growth, due to the presence of small amounts of the water-soluble vitamine."

THE experiments to determine the presence of the Fat-soluble A vitamine were conducted in much the same manner, except that in this case comb honey was also used in the feeding experiments. Now, please, everyone pay attention to what I am about to quote from Prof. Hawk, for it should interest every bee and honey lover

soluble vitamine, and that the comb is relatively rich."

These rats, like the first groups, were later fed milk to show that any failure to grow had been solely due to a dietary deficiency.

Extracted honey, added to a diet known to be deficient in Fat-soluble A, showed a slight gain in weight in some of the rats, but hardly enough to be conclusive. However, Prof. Hawk says, "That a minimal amount of Fat-soluble A may be present in extracted honey would be indicated further by the fact that our data show it to be present in comb honey."

NOW, please turn to the accompanying diagram, study it carefully and see if it isn't enough to make a colony of bees buzz with pride. I shall have to admit that I selected what I thought the finest diagram  
(Continued on page 566.)



SINCE the appearance of the August Sideline, I have decided to say a word or two about the little requeening job referred to on page 474. At the time of writing the August copy, my mind was more especially on the swarm with its several queens, and the sight of those other queens running out of the cells as fast as we cut them out. So, tho I thought more about going into detail about the system, or lack of it as you will, used in the requeening experiment, I didn't do it at that time. Subsequent comment has decided me to tell how we came to do just what we did. First, tho, let me quote briefly from last month's account of the swarm: "Fourteen days before (the swarm issued), we had found some fine cells in a good colony. Interested to see what success we would have by such a short-cut method of requeening, we dequeened six poor colonies, giving each one comb with a sealed cell, instead of giving the cell in a cell-protector as we should have done. Personal matters and a few days of rain kept me from examining them later. This Sunday a swarm came from one of these. As might have been expected, we found they had torn down the cell given them, and built a multitude of their own."

I might add here that I did not examine the five remaining colonies until too late to know positively whether the cells given them were accepted or torn down, but from the quantity of brood found in two of them, I felt it likely, or at least probable, that the new laying queen had emerged from the cell given them. At any rate, I really regret the words, "as might have been expected," for while the result is exactly what my own judgment did expect and what I think had happened in my more beginner days and what I know Mr. Edward Hassinger, Jr., of Greenville, Wisc., would have expected, it is not, if I properly read and interpret page 279, of May Gleanings, what that eminent queen-breeder, Mr. Mell Pritchard, would have expected, or what he has usually had happen to him. And I have such respect for Mr. Pritchard's experience and such confidence in his judgment that I'm just a little sorry that the verdict, "as might have been expected," was thus tossed out on my Sideline page.

Briefly reviewing pages 278-9, May Gleanings, here are the Hassinger and Pritchard judgments on the matter of requeening with a cell of brood and bees and an unprotected cell. About a week before the end of his main flow Mr. Hassinger kills all queens that are mismated or poor honey-gatherers, and also all two-year-old queens, altho they're good queens or they'd have been killed the year before. They are disposed of for age only. Then after eight or nine days, he de-

## Beekeeping as a Side Line

Grace Allen

troys all queen-cells in the inferior colonies, requeening each one with a comb of brood containing a sealed queen-cell, and adhering bees, from these

queenless good colonies. Mr. Pritchard, commenting, commends Mr. Hassinger's weeding-out custom, but objects to the long period of queenlessness brought about by allowing the poor colonies to build cells to be destroyed before being requeened. He urges that these queens should not be killed until the cells are ready for them in the good colonies, adding, "Mr. Hassinger says, however, that if he were to kill the queens in the other colonies and at the same time give them a frame with unprotected cells, 50 per cent of his colonies would destroy all such cells and raise cells from their own brood. His experience does not agree with mine."

While this surprised me, I have, as mentioned above, such great respect for Mr. Pritchard's experience and judgment that when one day we found those fine-looking cells in a particularly good colony, I remembered his advice and followed it, a bit against my own judgment, to be sure, but knowing how much more he knew than I did, and ardently hoping that my experience might agree with his. It did not. It agreed with Mr. Hassinger's. But if my Sideline comment sounds saucy, Mr. Pritchard—well, I was surprised myself when I read it in print, and sorry, too—"as might have been expected!"

But there's another point brought out in that same Hassinger-Pritchard requeening discussion that interests me. This time I'm taking issue from theory only, not from even the slightest first-hand knowledge. And I'm wondering if anyone else has experimented or observed enough to speak from experience. Mr. Pritchard objects (and of course he is not alone in the view) to queens reared under the queenless impulse. Let me quote again: "It is well known that colonies that have been made queenless, in their haste to improve the time in which queen-cells can be started, often start some of their cells with larvae two or three days old, this being fully half of the feeding period of the larvae. Queens reared in this way could not be expected to equal those which have been fed as queens for the entire time. Yet these cells, started from two- or three-day-old larvae having 30 or 40 hours start of the others, are the first to hatch. And since the first queen out destroys all the others, the queen remaining in the hive is likely to be lacking in quality."

I realize this is a common belief, resting on the assumption that for its first two or three days the larva will have been fed as a worker instead of as a queen larva. Yet



there is another very common belief, that the worker larvae are fed for the first few days on practically the same rich nitrogenous food as the queen larvae, a lighter or coarser food being substituted the third or fourth day. If this be true, it would seem to remove all objections to the queenless method of getting cells. If, however, it's one of the bits of knowledge that justify the popular wonder whether all the things we know are true, it's a different matter. If this common belief is based only on von Planta's study of the chemical composition of the food of bee larvae, it may, according to Dr. Phillips, be quite incorrect, for he (Dr. Phillips) holds that von Planta's conclusions are not to be considered final until verified by more modern methods of research and analysis. But so long as we accept the prevalent view that worker and queen larvae are fed alike for two or three days, we would seem justified in having faith in the quality of queens reared under the queenless impulse, unless they have been actually proved inferior. Even Mr. Pritchard, with his long experience, makes no mention of having thus tested them out; he merely feels justified in concluding that her qualities will be deficient.

Here where I am writing, outdoors right among the bees, there is a little pile of wreckage lying just to my left. It is the last of Dr. Allen's keg. The class in beekeeping at Peabody College did so strenuously desire to see some bees transferred, and to take part in the job, that Mr. Allen came to our rescue, waving us gallantly toward his keg. "Do your worst," quoth he. We did it. After the flow was practically all over and gone, after the honey crop had been gathered, we split the keg apart and cut out the best of the brood to tie into empty frames for the hive they were being transferred to. Knowing we were violating all authoritative instructions, I kept reminding the class that the proper time to transfer bees was in the spring or at least very early in the flow, not in mid-July with the flow a thing of the past. But we had not a bit of trouble. The bees were gentle and there was no robbing. Of course we had drawn combs to give them, to augment the brood cut out and tied in, so they had no foundation to draw as would be the case with a beginner. When we looked in two days later, the cut-out honey given them above was all taken down, and, unless the fall flow fails quite utterly, they will need no more help.

Referring again to my immediate surroundings, just to my right are two small piles of brick, with a little heap of ashes between. Telltale evidence, is it not? What merry breakfasts they have been, cooked out here in the early mornings while the rest of the world was asleep. I do feel sorry for people who live forever in a set routine, like squirrels in wire cages. Also for those who think variety and change are to be secured only by the spending of much money,

and who, lacking that, are unhappy because of the things they cannot do. Happy the man who keeps bees for a sideline and finds his recreation in gay and simple ways. Have you never tossed some sliced bacon or tender lamb chops into a basket, with a thermos bottle of coffee, if you are a coffeeite, a loaf of bread for toast, a bit of butter, an egg or two, and some fruit, and run out to your beeyard or some friendly hill and there toasted and broiled and eaten over an open fire, with day coming out of the east and bees beginning to leave the hives? Just try it.

Most sideliners are veil devotees. But occasionally we come across one whose ambition seems to be to work quite unprotected, often because some old beekeeper who never opened his hives except to "rob" them says he never wore anything for protection—didn't know anything about veils. Personally I have no such ambitions, nor do I advise them. Better be sufficiently protected for any emergency. Most professional beekeepers work occasionally without veils, but beginners and sideline beekeepers will do well to wear them. Of course, a quiet little nucleus can be opened with far less chance of a sting than a full, strong, zipping colony, so anyone wanting to experiment with his own steadiness should choose his hive wisely. Going without gloves is different. Stings on the hands and arms seem less serious than those on the face or ears or eyes. Besides, one acquires a certain deftness with bare fingers that seems almost unattainable with gloves. The answer to that argument, tho, is that he'll work a little more slowly and carefully, ungloved, and so take longer to do his work. If I remember aright, even Mr. Doolittle admitted that.

[There probably is some misunderstanding as to what is meant by "unprotected" cells. Our understanding of this is a frame of brood with queen-cell and adhering bees but no wire cell-protector. If Mr. Hassinger brushes all the bees from his frames then perhaps 50 per cent of the queen-cells would be destroyed. The bees which would naturally adhere to such a comb are nearly if not quite as much protection to a queen-cell as would be a spiral cell-protector. In your discussion you failed to explain whether or not you left the bees on the frame with the queen-cell.]

In regard to the second point under discussion, we believe, (even if we can not bring proof) that there is a difference in the quality of the food fed to worker larvae and that fed to queen larvae; and we know that there is a vast difference in the quantity of food in the two cases. Day-old larvae in worker-cells, especially next to the bottom of the combs, are usually so destitute of food that, when grafting, it is difficult to remove them without their being injured, yet along the bottom-bars is the very place where most of the natural queen-cells are started.—Mell Pritchard.]



## FROM NORTH, EAST, WEST AND SOUTH



**In Southern California.**—The weather for the past month has been exceptionally hot—in fact, records show that it was the hottest July in the past twenty years. Consequently practically all unirrigated vegetation has dried up, and the flow of honey for this season is pretty well over.

Most of the honey crop of southern California is in the warehouse. All in all, it has been one of our most satisfactory seasons. The yield has varied greatly in different localities. Some have had light yields, but the majority of the black-sage and wild-buckwheat ranges have given a big crop. Thirty-seven tons from two hundred and eighty colonies, spring count, is about the best your correspondent has heard of. The bean honey is now being stored, and prospects are good for a normal yield from that source. The wild buckwheat still yields a little in the higher altitudes and more favored localities. The blue curl is just beginning to bloom. It is very uncertain in its growth, as some places will show a heavy growth one year and little or none the next. This drought plant, as we call it, often produces considerable honey and sometimes gives a flow of nectar until the fall rains come.

Disastrous fires have already this year destroyed several thousands of acres of bee pasture in southern California. Several apiaries in this district were entirely destroyed. A remark by one of the neighbors of a fellow-beekeeper,—"No number of fire-fighters could have saved the bees, as the grass and weeds were as high as the hives," gives an idea of the carelessness of some apiarists. To look at some of our bee ranges, one would scarcely realize the rapidity with which a fire will lay waste the entire section. A clean apiary is a safe apiary if a fire is in the neighborhood.

County inspectors report the bee diseases as well under control. In many yards where both the American and the European foul brood have been prevalent for years, inspectors find that both kinds have been completely eradicated. Queenless colonies and drone-laying queens seem to be more prevalent this year than usual. With the advent of warm weather and the nearing of the end of the flow of nectar, this is often the case, and it is always well to keep a careful watch of each colony for a few weeks after the close of the honey season.

We have been putting on queen-excluders, as we consider our crop made and the tendency to swarm practically past. By putting on excluders now, we feel that the colony will store a greater amount of honey in the lower story. This will put the colony in better condition for winter. In talking with a prominent beekeeper a few days ago, he said: "I have been taking off my exclud-

ers while you have been putting yours on. You must have some reason for this." A third man who was present works with excluders on all of the time. And so it goes—each one does according to his own ideas, and as he feels results will be best for him. Our reason for putting on the excluders now is that, during the fall and winter, we gradually take off the empty combs. By early spring we have all of them safely packed away from the moths. If a colony should develop disease later, these combs do not need to be destroyed. The combs which contain honey are put in supers and placed on the strongest colonies.

Corona, Calif.

L. L. Andrews.

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**In Minnesota.**—This has been a good year for Minnesota beekeepers, especially for those who had their bees in proper condition to take advantage of the abundant flow of nectar. The frequent rains during May, June, and the forepart of July brought about a heavy growth of the white and the alsike clovers. The bees wintered very poorly in Minnesota last winter, and the month of April was cold and windy. As a consequence, bees were not in the best of condition when the flow began; but those colonies that had plenty of honey in the early spring built up very rapidly and were able to gather considerable before the clover flow was over. The basswood flow was very good, and by that time the colonies were in fine condition, and according to all reports received the yield from basswood has been heavy. The lack of rain for the past three or four weeks would seem to indicate that the fall flow would be light, especially in sections where the soil is not heavy. But in spite of the large loss of colonies last winter and the discouraging conditions in the spring, I am inclined to think that the Minnesota crop will be larger than last year.

No doubt, tons of honey were lost this year in this State for no other reason than that beekeepers failed to get their colonies into proper shape for the winter. The writer received appeals last fall from all parts of the State for assistance in securing sugar when it was already too late to do anything in the matter. Many extracted too closely and then failed to get the sugar they had depended on. Let us not forget the experience of last winter. If you haven't saved combs of the proper kind of honey for the bees to winter on, then you had better buy the necessary amount of sugar immediately, for it is better to be safe than sorry. Better feed some sugar anyway. I have carefully listened to the experiences of beekeepers in different parts of the State and have found that where colonies had young queens last fall and had been fed from 10 to 15 pounds of granulated sugar syrup in addition to the





## FROM NORTH, EAST, WEST AND SOUTH



honey in the hive, the bees wintered well whether the temperature in the cellar was 38 degrees or 50 degrees. So, be sure that you have young bees and plenty of good stores in the hive, and then do the best you can to keep the temperature not lower than 42 nor higher than 50 degrees. Personally, I think 45 degrees is a good mark to aim for. Now it is practically within the power of every beekeeper to have young bees and plenty of good stores in the hive, but the cellar problem is not so easily settled in Minnesota. With certain general principles in mind, I believe that each individual will have to work out the problem according to his own local conditions.

It is a difficult matter to say anything very definite about prices of honey. The dealers are holding off, and only those who are in a hurry for their money are selling to the wholesalers. The general feeling seems to be that prices will be about the same as last year.

Chas. D. Blaker.

Minneapolis, Minn.

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**In Michigan.**—On July 28 and 29, the State Beekeepers' Association held its annual summer meeting at Boyne City. One of the best possible programs was presented. Among the out-of-the-State speakers were E. R. Root of Gleanings, C. P. Dadant of the American Bee Journal, H. L. McMurry, State Inspector of Wisconsin, and W. D. Achord, queen-breeder of Alabama. It was decided to hold the next meeting at Alpena.

A stockholders' meeting of the Michigan Honey Producers' Exchange was held during the meeting at Boyne City, and it was decided to continue to solicit memberships in the Exchange. Some stock is yet available. Incorporation papers will not be filed until at least \$5,000 worth of stock has been sold. The next stockholders' meeting will be held in the Administration building on the Detroit State fair grounds at 2 p. m. on Sept. 9.

Foul-brood conditions show a decided improvement over last year and the preceding years. Because of the steady honey flow during the season and because of the large amount of Italianizing that has been done in recent years, European foul brood has been a serious factor in but few communities. American foul brood is, of course, widely scattered over the State. The elimination of the small beekeepers by winter losses and the passing of the box hives are, however, making the matter of control easier than before. Next spring we will start the county clean-up which was anticipated in the quarantine law which was passed by the last legislature. It is planned to start in Cheboygan and Huron counties and extend the county clean-up into the adjacent territory as fast as possible. Local inspectors in the various counties have been cleaning up

their territory township by township, and next season should show quite a number of counties free from American foul brood.

The crop of white honey is being extracted at this time. The honey flow started at about the normal time, except in a few areas where the flow was from one to four weeks late. In general, the yield per colony is very satisfactory. In this there are some exceptional areas also. The southern part of the State has had the heaviest white honey flow in years. Yields of from 150 to 200 pounds per colony for the run of the yard are being reported. This is very exceptional, inasmuch as the bees were very weak in the spring. When spring weather really opened, a large part of the colonies were only two- and three-frame nuclei. Central and northern Michigan have not had as heavy a crop as the southern part. Rain and cold weather in these parts interfered with the secretion and gathering of the nectar. This will be made up to a certain extent by the flow from goldenrod and other fall flowers. Goldenrod has made a heavy growth and gives promise of a good crop in those districts where it is found. There is very little comb honey being produced this year. A large part of the comb-honey producers found their bees so weak that they immediately prepared to extract this year. Comb honey will therefore be scarce in Michigan and should command a high price. The honey market is becoming quite active again. Many producers have received attractive offers for their entire crops. The general tendency is to hold until the market becomes more settled and a somewhat definite price established. In connection with the above statement, it must be remembered that a large part of the bees of the State died out last winter or this spring. Possibly 60 per cent of all the bees died. Therefore, even with an exceptionally heavy crop in some parts, the Michigan crop will not total as many tons as in previous years. The loss has been made up to a considerable extent by the professional beekeepers, but the farmer beekeepers have not made up the losses. This leaves the bulk of the bees for next year's crop in the hands of the large producers.

East Lansing, Mich.

B. F. Kindig.

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**In Florida.**—I have not been keeping up with conditions in other parts of the State this year, but believe the season has been very poor. We were fortunate here in obtaining a fair crop from orange, which sold readily at 20 cents f. o. b. here. From gallberry, basswood, and red-bay there was a small surplus. This honey has a peculiar flavor, tasting very much like maple syrup, and I am keeping two barrels of it for my own use, as it would be sure to be suspected of adulteration if placed on the market. Saw palmetto was a failure.



## FROM NORTH, EAST, WEST AND SOUTH



Cabbage palmetto, tho putting out the biggest bloom for years, has yielded nothing so far, and the heaviest of the bloom has blighted or is over. Partridge pea is more abundant than usual, but is not producing much, and will give only a small crop. Prospects are good for a fall flow.

Apopka, Fla.

Harry Hewitt.

\* \* \*

**In Southern Indiana.**—We are having the driest time ever experienced—even drier than ever dreamed of by the promoters of the Bone-Dry Amendment. Beekeepers are all hoping for at least a little near-rain. This has not been considered a good locality for the production of honey; but, since the farmers are learning the value of sweet clover, things are looking up a bit in the bee line. This year we had one of the heaviest flows from sweet clover ever experienced in this section; but, as the weather turned very hot and dry, the sweet-clover flow lasted only about two weeks; so many colonies did no more than fill the brood-nest. However, the colonies that were in first-class shape, with a large hive well-filled with brood and boiling over with bees just as this flow opened, gave a surplus of a hundred pounds or more per colony. In this connection, I wish to state that I believe very few beekeepers fully realize the importance of having the "Storing Instinct Dominant," as Mr. Demuth puts it. Nothing will make bees speed up on food production like having plenty of fully drawn comb right next to the brood-nest. I had a marked illustration of this during this short flow. A number of cell-building colonies were getting their hives filled up. They were not crowded, as they had empty combs in the super. However, I believed they could work a little faster if they had more room; so I gave them an extra Jumbo hive-body each with fully drawn combs. I also removed from the brood-nest the frames that were filled with honey, replacing them with empty combs. Next day it was really laughable to see those bees hustle. It looked like a hundred rapid-fire guns shooting bees in and out of the entrance. It seemed almost incredible that they could pass each other at such high speed without having a head-on collision. At any rate it made one feel that they ought to take out a little accident insurance. In five days' time they had the Jumbo hive-body well filled with honey.

Smartweed is our best honey plant here, but the dry weather has knocked it out completely. We have one plant, however, that thrives best in hot dry weather. It is known by several names, dry weather vine, blue vine, and climbing milkweed. As it does not yield in wet seasons that are favorable to smartweed, we are reasonably certain of at

least a little fall honey for the bees' winter stores. It grows in the cornfields along the White River, the Wabash, and the Ohio. Last Sunday we "flivvered" up to historic Ft. Knox on the Wabash, and I noticed that the cornstalks were fairly loaded with this dry weather vine, and between the rows on the ground it formed in places a regular carpet. This field had been well cultivated; but, as the roots of the plant go down several feet into the ground, the cultivator merely cuts off the tops of the plant, and it soon comes on again. I do not know how this looked to the corn-grower, but to a beekeeper it was a most beautiful piece of scenery. The quality of this honey is of the very finest, in my judgment comparing favorably with the famous California sage or star thistle honey. Some have reported that this honey sours quickly. I believe this is due to one of two causes, either it is extracted too soon or it is mixed with the wild cucumber. If the dry weather vine honey is allowed to become thoroly ripened, it will not sour and is of heavy body so that it will pour out of a tin can very slowly, even in hot weather. One party reports to me that he had some so thick that he could not extract it.

This dry weather has given a body to the sweet-clover honey and the quality is exceptionally good. Good demand at 40 cents per section for comb honey.

Vincennes, Ind.

Jay Smith.

\* \* \*

**In Texas.**—The general condition of the honey plants has changed for the better. This does not mean that the honey flow is increasing, but it does mean that all over the State there is a normal flow. The horsemint has just finished a prolonged and productive season; and, in many sections, the mesquite is giving a summer flow. All over the State, where cotton is nectar-producing, the bees are storing honey. In the greater part of Texas, there are a few weeks in midsummer when there are but few plants in bloom. This period occurred early this year, as already the broomweed, the bitterweed, the frost plant, the asters, and the goldenrods give promise of a heavy yield. Como, the shrub that gives a honey flow in October and November in southwest Texas, surprised the oldest beemen by blooming and giving a honey flow in the middle of July.

This year will be long remembered by beekeepers as one in which high averages were reached. One man reports 100 pounds per colony from 900 stands. One yard of 56 stands produced 176 pounds per colony. Many higher averages have been reported, but we know that the above were properly weighed and counted. If the remainder of the season is normal, there will be another extraction from the above hives.

The larger proportion of the honey in





## FROM NORTH, EAST, WEST AND SOUTH



Texas is extracted soon after it is deposited. This practice is brought about by a desire to get along without a large supply of supers and to get the honey on the market at once. With all its good points, this method causes the production of much poor honey, brought about by the extraction of thin, partly evaporated nectar. This is especially true in the locations where horsemint is dominant. The other and most vital drawback is the glutting of the market by the heavy supply of new honey offered. This year, even the enormous quantities of honey were produced, it was sold early. In fact, but little of this year's crop is now in the beekeeper's hands. The price has held its own, thanks to the Honey Producers' Association.

There never was a time when there was greater activity among the beemen in Texas. This movement is not a boom caused by a lot of new men rushing into the business on account of two successful years of honey production, but it is brought about by the constant demand for honey, queens, and combless-package bees. A large number of men, already well known as sellers of bees and bee products, are planning to double their production next season. Likewise, many small beekeepers have made an increase and will have both honey and live bees for sale in quantities. To keep apace with the demand for bee fixtures, the dealers in standard fixtures have had to increase their facilities for distribution and a number of branch houses have been established. The hopeful part of this activity is that it is backed by capital and experience.

College Station, Tex.

H. B. Parks.

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**In North Carolina.**—The bees are now enjoying a light flow from a variety of midsummer nectar-yielding plants, especially in the eastern part of the State, where there is rarely an absolute dearth of honey-producing flowers during spring, summer, or autumn.

Reports from every section of the State show one of the very best seasons beekeepers have had in a decade, and the fine progress that has been made in advancing methods and equipment in beekeeping assures far and away the biggest honey crop that North Carolina has ever had. Specific reports as to yields are not yet available as a general thing, but yields of 100 to 200 pounds for colonies in normal condition are general. There are cases, under exceptional conditions, where a single colony has gathered 300 pounds and more.

Beekeepers in the coastal section of the State, where the gallberry is a fruitful source of a fine quality of honey, had the

disadvantage of having this bloom badly injured by severe cold and light frost in the early stages of the development of the flora and this reduced considerably their crop, which, was, nevertheless, very satisfactory in the matter of product.

Prices are hardly established here yet. Twenty to 22½ cents per pound, where the producer's whole crop is sold, seem to be the prevailing prices. Of course, in small sales and sales of extra-fancy product in lesser quantities, considerably higher prices are the rule—from 35 to 50 cents for fancy comb and 30 cents and upward for extracted. Much honey is still put on the market in unattractive and unsanitary packages, and these bring very low prices that make the sale of the better prepared honey at the necessarily higher prices somewhat difficult, and will continue to do so, until the trade comes to appreciate the extra desirability of the more carefully handled product. Especially is this true of section comb honey, the great bulk of which is still put on the market unprotected by cardboard cartons or otherwise from dust and microbe contamination so inevitable where comb is handled and exposed for sale in this condition.

Numbers of beekeepers who have practiced swarm control and prevented any form of increase during the honey flows are now preparing to divide their stronger colonies, providing new and most prolific queens, with a view to preparing to increase greatly their 1921 yield of honey. The great majority, however, will operate their bees right thru the fall flora for honey, and possibly these will gather a third more honey before late November frosts close the season, and force the bees into winter status.

Beekeepers in this State are being urged by the officers of the State and Federal beekeepers' extension service to gather at the A. & E. College, Raleigh, August 23-28, for a beekeepers' extension school, to be in progress there under direction of Entomologist Z. P. Metcalf. The entire program is full of the most interesting and vital features for the aggressive beekeeper. For instance, the session for Aug. 27 has for special subjects: "Behavior of Bees in Swarming," "Swarm Control," "Beekeeping Regions in North Carolina," and "Characteristics of American and European Foul Brood." These topics are to be treated by experts in pointed and brief presentations of their respective subjects. The other two days are to be crowded with features just as profitable. Special effort is being made to get together the biggest gathering of beekeepers North Carolina has yet had.

Wilmington, N. C.

W. J. Martin.

## HEADS OF GRAIN FROM DIFFERENT FIELDS

### How Bees Steer.

Dr. Stellwaag in the "Biologisches Centralblatt" has given so interesting a theory concerning the flight of bees that it has recently been quoted in "The Scientific American," and also in "The Literary Digest." His experiments and observations would seem to show that instead of steering by shifting its ballast, by throwing its abdomen or wing covers from side to side as formerly supposed, bees steer by varying the wing pressure, which is accomplished by changing the angle and force of the wing beats, and thus operating the wings as stabilizing planes. E. R. Root.



### Soldiers Turned to Beekeepers.

The pioneer element is so strong today even among western men that it is not surprising to find many financial strings on their bows. Clyde Crosser, a ranchman near Lander, Wyo., found his blacksmith shop so



A soldier blacksmith and his tongs for handling frames.

profitable that he hired a man to look after his ranch, and when an old Colorado beeman came to be his neighbor, Mr. Crosser and his wife became so interested in bees that they finished their first bee year with 24 colonies. These did not winter well, and Mr. Crosser resolved that he would find out at the first opportunity just what mistakes he had made and how to rectify them. He had to wait until after the war, however, when he had an opportunity to study bee culture at the Utah Agricultural College with other vocational students who had been wounded or disabled in the army.

When the class was discussing hive tools one day he displayed some tongs which he had invented for handling brood-frames. A blacksmith naturally wants to handle every-

thing with tongs whether it is red-hot iron or seething brood-frames, but these frame tongs excited the admiration of many experienced beekeepers. The jaws of the tongs are drawn out thin, the ends turned over square and small teeth filed in them so as to clutch firmly into the side of the brood-frame when it is being lifted. One handle end has a claw for drawing nails, while the other handle end has a broad chisel bit or screw-driver. It is a tool with many uses.

The bee class that Mr. Crosser is attending is the second that the Utah State College is offering to disabled army men. Many of the men who in the winter took the first course, which was mainly theory, are now doing practical apprentice work with the beemen of the inter-mountain country. Thus Edward H. Ashman of Salt Lake City is at Cedar City among the 3000 colonies of the Southern Bee & Honey Company. Joseph C. Christiansen, also of Salt Lake, is with Thomas Chantry, at Wellington, in Carbon County, Utah. Mr. Chantry, who has had 45 years' experience, is one of the oldest of Utah beekeepers. He has also been secretary of the Utah Beekeepers' Association. A third man from Salt Lake, Wayne C. Beane, is with the Idaho Falls branch of the Superior Honey Company. These three city boys were absolutely without experience in handling bees when they came to college for their vocational course, but are showing much aptitude and ability in their new vocation. Another boy from their bee class is Ira C. Sax of Wendell, Idaho, who is now in Myton in Duchesne County, one of the best alfalfa seed districts in Utah. Soldiering and beekeeping are as far apart as the poles, but, all the same, the war will soon count many beemen among its most noteworthy by-products.

Logan, Utah.

Frank R. Arnold.



### Syrup Fed on Top of Stores.

Last year the bees came thru in as bad shape here as one could imagine. The winter loss was fully 65 per cent among extracted-honey producers, while comb-honey producers suffered only a slight loss. The main cause seemed to be poor stores gathered too late even to ripen before cold weather. Extracted-honey producers, including myself, extracted their honey before the season was quite finished and what there was left to be gathered went into the brood-nest "green" just as cold winter came on (in October). Sugar was scarce and impossible to get. I fed six of my colonies five to ten pounds of sugar syrup in spite of it, and they were the only ones of 53 that came out in good shape. The others had merely a handful or no bees in spite of a good, warm, dry cellar.

Cambridge, Minn.

Robert G. Norberg.



## HEADS OF GRAIN FROM DIFFERENT FIELDS

### Fireweed Location in Northwest.

This is an ideal fireweed range, on logged-off lands lying in Pacific County, Wash. The yard is that of Messrs. Julian and Bush containing about 125 colonies. The picture shows a corner of the yard and its sheltered location. The apiary is well watered, and the owners harvest good yields and market the same within the State. They practice jacketless outdoor wintering and largely in single-story 8-frame hives. They found stores lower last spring than any previous one, but they had been foresighted enough to retain sufficient honey in combs for feeding if necessary.

I am a "small scale," "long range" bee-

I came, 15 years ago, from Oakland County, Mich. Did I find it so? Not by a long shot. I was a beekeeper in Michigan—one who could get the honey with the next one; but when I came out here to Poseyland my beekeeping did not work. I had to learn all over again, and that was some job too, believe me. If you do not believe this, ask E. R. Root, editor of this journal, who was out here last winter. Didn't he tell you the eastern beekeeper has an easier time than we do out here? He was right when he said so.

Owing to a hot wave, 20 colonies melted down for me in June, 1917. Foul brood? We have it out here—four kinds, and all



A good location for a fireweed honey crop on logged-off land in the Northwest.

keeper, but my "long suit" is bee-hunting as a diversion and sport. Since becoming an addict 3½ years ago, I have been a close student of bee culture, beginning with Quincy and following on down the line. During this time I have located about 30 bee-trees.

Raymond, Wash.

M. C. Osborne.

### Getting Down to Business.

You Easterners say that out in California all they have to do is to take out a load of supers, put them on; when full, extract them; and in the fall put a twenty-pound stone on, and they are ready for winter, and the bees will work for you and board themselves; and that, if you take all the honey off, they do not seem to care, but will gather some more to live on for winter. Yes, that is what I expected when

look alike to a tenderfoot. Stings? Oh, no! I got only 36 one day with a bee-tight suit on. Skunks? Yes, we have them. One man got nine one night in his beeyard. Ants? Yes, four kinds. They drive a whole swarm out of the hive. Bees stolen? Yes, they leave us the hives. Sometimes and most generally the wheelbarrow, house, and all go. All they left for one poor man was the auto truck. Cheap bees? Fifteen dollars a swarm. Do you call that cheap? Wintering problem? Well, yes, I guess that is what the editor of Gleanings called it. Forty pounds of good honey at 20 cents—\$8.00, and a good hive packed; queen every year; three to five dry years on a stretch out of every six or seven years. This year I got only 20 pounds per colony, spring count. Then they have the nerve to ship bees here by the carload.



## HEADS OF GRAIN FROM DIFFERENT FIELDS

Yes, we get a honey crop here once in a while, but we earn it. Now, do not get confused and come out here with the idea that you can buy 300 colonies, set them in an orange grove, and that all you have to do is to go to every hive and rap at the entrance and they will hand you out \$20.00 each. They might give you 20 each, but it will not be dollars. I got on an average only three and a half little, measly dollars this year per hive, and I was offered \$12.00 a hive for my bees in the spring. The most of us here are here to stay, as our way here will not do in other States; so if you can get a fair crop in your own State, I believe you better not come here to keep bees, as it is too uncertain. I sometimes wish I had all my bees and all my outfit that are now here moved back to Michigan; but, as it is, I am about to carry on a side line to fall back on in a poor year.

After the above explanation, I hope that

you will no longer think that dollars grow on trees out here.

Arlington, Calif.

Chas. S. Kinzie.

### That New Fumigant for Bee Moth.

A short time ago a correspondent asked why we did not recommend the use of carbon tetrachloride as a fumigant against wax moths instead of carbon bisulphide which is so explosive and therefore dangerous. The Editor of Gleanings referred the suggestion to the Bureau of Entomology at Washington. The following is the reply received from C. R. Watson of the Bureau:

"Pursuant to the statement I made to you in my letter of the 14th of last November that we were planning to carry out some experiments to determine the value of car-



In an Oklahoma apiary.—(R. L. Blackwell, Lexington, Okla.)



## HEADS OF GRAIN FROM DIFFERENT FIELDS

bon tetrachloride as a substitute for carbon bisulphide as a fumigant against wax moths, I now write to tell you that our experiments so far have been entirely unsuccessful. Hives containing wax moths in all stages of development were tiered up and treated to the fumes of the tetrachloride by exposing a few ounces of the liquid in a pie tin in a covered empty body at the top of the tier. The millers were always observed to leave the lower regions of the enclosed space and collect at the top under the cover, but none were seen to die nor temporarily to be overcome by the fumes.

This procedure was then repeated, with the difference that the pie tin containing the tetrachloride was placed upon the upturned face of a hot flatiron, thus vaporizing the chemical rapidly. No moths were found dead after 12 hours, but they had left the

lower space and had collected just underneath the cover.

There is no reason to doubt that wax moths could be drowned in the fumes of carbon tetrachloride, provided they could be held in them long enough; but the relatively high boiling point and high molecular weight both predict the difficulty of securing rapid enough evaporation to fill the upper portions of the enclosure before the gas all leaks out thru cracks at the bottom. Experiments so far conducted would lead to the belief that if carbon tetrachloride is ever successfully used as a fumigant it will have to be inside some specially prepared tank or vat which shall prevent loss of fumes by leakage.

I am convinced that the bisulphide is quicker and more positive in action, that it is more simply used, and that it is cheaper."

### The Bee Inspector.—By Bill Mellvir

(With Apologies to Walt Mason.)



A young inspector came around and says to me: "Now, Bill, I found some brood diseases up the creek; it's all around you good and thick. The pupae in old Jake Smith's hives by thousands daily lose their lives; *Bacillus larvae* eats them raw, which is against our new state law. The larvae at Joe Simpson's place are turning yellow in the face; *Bacillus pluton's* in their crawl in violation of the law. To north, to south, to west, to east, these outlaw microbes daily feast. I shall not tolerate such raw infringements on our new bee law. So every dog-goned rusty jay who harbors bee-disease a day is sure to get it in the neck for violating law, by heck! I shall compel them to obey the dictates of the law today. Enforcement of the law's the thing to clean the country up by jing." I reared right up on my hind feet and said in words aglow with

heat: "Go back, young man, where you came from. Go back so fast your gears will hum. Go back where wise guys chew their cud and scratch their shining pates of wood. Go tell your boss we do not need a lot of law that's gone to seed. If you should force such men as Dick or Tom or Harry—any hick—they'll put out combs rank with disease to feed the germs to neighbor's bees. Or if by chance they don't get mad and put our business to the bad, not knowing how the stuff to cure, they'll spread the microbes swift and sure. Go tell your highbrow boss to keep his police home where they can't peep; then send a teacher down to bring some information on this thing. You can not drive us hicks an inch by yelping law—now that's a cinch! But if they send a teacher bland, we jays will all eat from his hand."

I AM running 32 colonies of bees this summer, and so far I have not been able to secure enough sugar for fall feeding. Would it be possible for me to boil up beets the latter part of September and thus make a syrup and feed this to the bees? Would this syrup in any way injure the bees? Michigan.

O. H. Roth.

Answer.—The sugar made from the beets could be fed the bees in the spring, but would be very bad as winter stores. In case you are not able to obtain the sugar for fall feeding, your best plan will be to reserve enough of the super combs of honey to supply the bees during the winter.

## FEEDING OLD HONEY.

Question.—I have on hand about 400 pounds of old honey taken from cappings. This honey is eight or ten years old. Would it be all right to use for feed or do you think it would be injurious, thus killing the bees? It has been stored in open-top 60-pound cans, and is mostly candied.

Idaho.

Charles W. Gwin.

Answer.—If you are certain that the honey did not come from diseased colonies, it will be perfectly safe for you to feed this.

## BROOD IN SUPERS—EXTRACTING FROM BROOD-CHAMBER.

Questions.—(1) What can be done with supers that have brood in them? I have a ten-frame hive and two supers on it. One of the supers is full of honey and brood. What can be done in such a case? (2) The rest of my hives are 8-frame and they are packed with honey and brood. Would you advise taking some of the honey from the brood-chamber or leave it all to them? Will the brood be damaged when honey is extracted from the brood-chamber?

Kansas.

Mrs. S. A. Kleiman.

Answers.—(1) In order to extract the honey without being troubled by the presence of brood, our advice would be to leave the supers on the hive until after the brood has hatched. The honey may then be extracted without trouble. (2) We certainly would not advise extracting from the brood-chamber. Your bees will doubtless need all the stores they have for the coming winter; and it is never advisable to extract from frames that contain any brood, for some of the bees and the larvae are bound to get into the honey—a condition which, of course, you would not tolerate.

## KEEPING MOTHS FROM COMBS.

Question.—We will have about 1500 frames that we will have to take off our bee boxes and would like to know the best way to store them for next season to keep out the moth.

Louisiana.

Bernard &amp; Bejeaux Apiary.

Answer.—Dr. Miller, in the American Bee Journal, strongly commends the plan of W. S. Pangburn, which is as follows: First scrape all propolis from the top and bottom edges of the supers in order that the bodies may fit tight and thus retain the gas. On top of each set of combs place a cloth about 10 inches square (doubled), and pour a table-

## GLEANED BY ASKING



Iona Fowls

spoonful of carbon bisulphide on the cloth and cover with two thicknesses of newspapers to insure a tight joint. Then place another body on top and

treat the same way, and continue as high as you wish to go.

## SUGAR FOR FALL FEEDING.

Question.—In March Gleanings you are advising buying sugar for next fall feeding. You forget one thing. Beekeepers do not buy sugar, bee robbers do, sometimes.

Illinois.

W. H. H. Stewart.

Answer.—We are interested in your opinion, and yet can hardly agree with you. There are some beekeepers who find that they can winter better with sugar stores than with honey. This is always true if the fall flow is of poor quality. Also, there have been years of failure in some localities when the bees could not store enough for winter. Furthermore, in those cases in which the beekeeper has foul brood to contend with, it is not safe to interchange extracting combs with brood-combs, and therefore in the fall such a beekeeper will sometimes find a part of his colonies without sufficient stores in the brood-chamber; and, since it is not safe for him to feed his honey for fear of thus scattering the disease, he will find it necessary to use sugar syrup.

## HEATING HONEY.

Question.—For heating honey after it is bottled I intend to use a sheet-iron plate to be placed in a pan of water with a false bottom. The idea of the false bottom is to keep the jars from actual contact with the heat. How high should the water line be on the jars? Also, what would be the maximum temperature?

Connecticut.

William Wallin.

Answer.—A false bottom of screen would be better than a sheet-iron plate, since it would allow free circulation of water at the bottoms of the jars. The false bottom should be about an inch from the bottom of the vessel containing the water, and the water should cover the jars to within an inch of the top. The water may be heated to 180 degrees Fahrenheit, but the honey should not be allowed to become hotter than 160, as otherwise its flavor will be injured.

## SWARMS RETURN TO PARENT COLONY.

Question.—One of my colonies has swarmed twice, and both times they left the new hive and returned to the parent colony. How can I remedy this?

Michigan.

Mack Hoagland.

Answer.—Colonies sometimes show reluctance to remaining in new hives. If drawn comb is given instead of foundation, they are more inclined to stay. Also, it often helps to turn the parent hive with its entrance in the opposite direction. In some cases it is even necessary to throw a sheet over the hive at the time the colony returns in order that the appearance of the hive



may be so changed that the returning bees will not recognize it as their previous home. Of course, if the parent hive is carried some distance from the old stand on which you have the new hive there will be less danger of the bees' entering the wrong hive.

#### WHY LOSS OF QUEENS IN MATING.

(Answer by L. L. Andrews.)

Question.—We have been having an unusual fatality of queens here in southern California at the time of mating the queens. Do you think this loss is due to lizards or to birds? If birds, what kinds do the damage?

California.

F. P. Heston.

Answer.—The loss of queens at the time of mating can be accounted for in several ways. This being an unusually cool spring with many cloudy and foggy days, conditions were very unfavorable for queens' flying out and returning. Especially was this the case where there were intermittent hours of sunshine and clouds. Birds, the martins in particular, always get many bees and, of course, are not respecters of queens. These birds are always to be found around the apiary, and very few of the beekeepers realize the damage they do. Other birds, such as the California mocking bird and some of our fly-catchers, have been accused of eating bees, but I have no proof of their guilt. In fact, I am willing that the mocker, as we call him, should have a few bees rather than any harm should be done him. We have always felt that lizards were friendly toward the bees until this year, when we killed and dissected several and found them gorged with bees. Since then we have had no mercy on them. We have found more queens than usual with defective wings this year. These, not being able to fly, of course turn out to be drone-layers.

#### RAISE QUEENS OR BUY THEM—SHAPE OF QUEEN—EFFECT OF REQUEENING ON LONGEVITY.

(Answers by Jay Smith.)

Questions.—(1) Does Mr. Smith believe that a sideliner or small honey-producer could raise good queens and raise them as cheaply as he can buy them, provided he can get them near by? I believe many queens are injured by shipping, but that a good breeder will raise better queens than the ordinary beekeeper. (2) Does Mr. Smith attach any importance to the shape of a virgin queen? Does he prefer any certain form, and if so, what is it? Will any certain form produce more eggs and live longer than another? (3) Will requeening every year tend to produce queens and bees shorter-lived than we had years ago when queens were kept three and four years? My youngest queens stood the April storm best, generally speaking. And year-old queens are my oldest in the future, unless they are exceptionally good and are kept for breeding purposes.

Michigan.

A. W. Lindsay.

Answers.—(1) It depends a great deal on the sideliner or the small honey-producer himself. If he has a liking for this branch of the work, it would be both profitable and pleasurable to rear his own queens, and the risk of introducing can be eliminated by giving a large, well-developed queen-cell to the colony when the honey flow is well on; for, if this colony was queenless 10 days when the honey flow was on, it would do no harm

since the bees reared from the eggs laid by the queen at this time, had she been left in the colony, would have emerged too late to do any good for that honey flow. I cannot agree with you that many queens are injured in the mail. If the journey is extended long, say over 10 days, the bees and queen are of course worn out and arrive feeble, and injury is apt to result, altho many queens have been shipped to England, and the reports from there are very gratifying, altho queens were three weeks on the road. My experience in both selling and buying queens is that if the queen is shipped when she is just beginning to lay, is a fine, vigorous queen, and is properly introduced, she will be every whit as good as tho she was raised by the bees themselves in their own hive. (2) A virgin queen just hatched should be large, long, with broad abdomen, tapering gradually from the thorax down to a point. Two or three days old, she will be much smaller, little larger than a worker, and should be extremely active and nervous. After she has mated and begins to lay she should begin to stretch out, broad and very long. A blunt queen is not as good in my experience. Neither is a small queen as good. Some report small queens are as good as larger ones. I do not wish to argue with these people, but will state that in the many thousands that I have used, I am yet to see a small queen that was worth a cent. The bigger the queen the better. (3) Requeening every year could in no way produce queens that were short-lived. How could it? If you rear a queen, the life of the queen will depend largely on the breeding queen back of her, and what difference could it make after this queen was reared whether that breeder was kept four or five years or immediately killed? The only possible difference, as I look at it, would be if you reared queens from a breeder, say five years old, thus trying to transmit the longevity from the old queen. If there were any difference I should say queens reared from an old queen would not have the vigor of those reared from a young one. In fact, I have seen old, decrepit queens that were superseded produce deformed queens, and I laid it to the fact that the old queen laid two or three eggs in the cell and the young queen was misshapen before the bees removed the extra larva. A similar question arose a few years ago concerning apples. A good many said that when they constantly took buds from young apple trees that had never borne fruit, following this up year after year, the young trees would not bear as well as tho buds had been taken from trees that had borne for a number of years. The Indiana Horticultural Society conducted a number of experiments along this line, taking buds from young nursery stock that had been taken thus for many generations, before any of the trees had ever borne fruit. Right alongside of these, buds were taken from trees that had borne fruit for many years. The decision was there was no difference.

## THE Ohio Beekeepers'

A association will hold its summer meet at Medina, O., on Sept. 10 next. Elaborate plans are under way to make this the largest gathering of beekeepers ever held in Ohio. Arrangements are being made to get speakers from other States. The latest machinery for extracting, including a machine uncapper, will be on exhibition. Besides a full program beekeepers will be taken to the A. I. Root Company's queen-rearing yards, where some of the latest tricks of the trade will be shown. All beekeepers invited.

The finding of vitamins in honey, as told by Stancy Puerden, in her department in this issue of Gleanings, is important news to the beekeeper, and every reader's attention is directed particularly to the article beginning on page 538. Every lover of honey, and particularly every booster of honey as a food, should read this carefully, because it will help him to boost the sale of honey, always bearing in mind that honey is a natural food while sugar is an artificial, man-made food.

The Beekeepers' Association of British Columbia will hold a convention of beekeepers at the Vancouver Exhibition, Wednesday, Sept. 15, at 2:30 p. m. The evening session will be of a social nature, with short addresses on beekeeping topics. Visiting beekeepers from Washington and other States will be heartily welcomed, and are requested to make themselves known to John Brooks, secretary, or the president, Williams Hugh.

Vigo County (Ind.) Beekeepers' Association recently conducted a four-days' inspection and demonstration tour, which proved to be a very interesting and instructive affair. The association secured the services of a moving picture artist and outfit and succeeded in getting some very good pictures, shown in Terre Haute at the leading moving picture house. So there is a set of moving pictures available, showing a colony of bees transferred from a box hive to a modern hive; cutting of a bee-tree and transferring the bees to a modern hive; burning the contents of 100 hives infected with American foul brood and disinfecting the hives, supers, lids, and bottoms by fire; also transferring a colony of bees from a log gum to a modern hive, and other educational features, that are very interesting, and should prove beneficial to modern bee culture. W. A. Hunter, Terre Haute, Ind., can be addressed regarding the possible use of these moving picture films.

The Western Canadian Beekeeper, printed and published by the Mutual Printing Co.,



Vancouver, B. C., and edited by Lynn Broune, is a newcomer in the field of apicultural journalism, and the official organ of the British Columbia Honey

Producers' Association. This new journal makes a very creditable appearance and is well filled with matter that is both interesting and valuable to the British beekeeper.

The Crop Report Committee of the Ontario Beekeepers' Association met in Toronto on July 31, when reports were received from 470 members, together with reports from Quebec and various States. With a few exceptions the crop reported is fair. Owing to the extreme winter loss of 1919-1920 there was only half the normal number of colonies to harvest the crop. Members are urged either to save an abundance of honey for wintering, or secure sugar. Sugar is available, but may not be cheaper before the bees should be prepared for winter. The committee recommended the following prices and should any conditions arise which will materially alter the market, members will receive due notice: Best quality light extracted, wholesale 27c-32c per lb.; best quality light extracted, retail (to consumer), 32c-40c per lb.; No. 1 comb, wholesale, \$3.75 to \$4.75 per dozen; No. 2 comb, wholesale, \$2.75 to \$3.75 per dozen. (All prices f. o. b. shipping point.) The minimum price is recommended for barrels or whole crop; the maximum price for part crop or 2½-, 5-, and 10-lb. tins.

The Oklahoma Free State Fair will be held at Muskogee, Okla., the week of Oct. 4 to 9, 1920. A large exhibit of apary products and beekeepers' supplies is desired, and to this end a premium list of \$437 is offered. Competition is open to the world. Here is an opportunity for beekeepers to advertise their products and help the industry at large, by exhibiting honey in its different forms in appetizing packages. Send for a premium list to Ethel Murray Simonds, secretary of the Oklahoma Free State fair, Muskogee, Okla., or to Robert A. Holkamp, Superintendent Apiary Dept., 4263 Virginia Ave., St. Louis, Mo.

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The Henry Field Seed Co., of Shenandoah, Ia., have sold 20 bushels of seed of the Prof. Hughes new annual white sweet clover to the DeGraff Canning Co., of De Graff, O., at \$300 per bushel, to be delivered as soon as harvested this fall. Mr. Crites of the De Graff Company is intending to use this as a cover crop and green manure in their farming operations. He has been growing this experimentally, and has recently visited fields of it in all parts of the country, and



especially in Alabama, where it originated and is now growing wild. He contracted for half of the Henry Field Seed Co.'s crop, whatever it may be, and the crop is estimated at 40 bushels. This 40 bushels is the third crop from a start of 50 seeds sent by Prof. Hughes, two years ago last spring, to the Field company. They raised 2 pounds of seed from the 50 seeds, and then last year raised 300 pounds of seed, most of which was retailed at \$1.00 per ounce. They next planted about 25 pounds of seed, on about five acres, and expect 40 bushels from the crop this season.

The Spokane Home Bureau is to have a short course in beekeeping this fall. Geo. W. York, former editor of the American Bee Journal, is to have charge of the course. Mr. York thinks this is an entirely new idea, as he knows of no other city where such a course has been given. The instruction will not be confined to city population, but will be taken advantage of by the rural population in the community adjacent to Spokane.

The San Francisco Chronicle of July 18 publishes the following article on its financial page: "That beekeeping is profitable is shown by the declaration by Western Bee Farms Corporation of an 8 per cent dividend on preferred and an extra of 20 per cent., a total dividend of 28 per cent, although the present year is regarded as one of the worst for bees in the past 15 years, through lack of rainfall. Despite these most unfavorable conditions the financial statement of this corporation shows net earnings of \$25,017.99 on a total paid-in capital of only \$50,000, making a net profit of over 50 per cent. A subsidiary company of the Western Bee Farms Corporation, known as the Western Honey Corporation, has just been organized under the laws of the State of California with a total capitalization of \$250,000, consisting of \$125,000 of preferred 10 per cent cumulative stock with a par value of \$100 each and \$125,000 of common stock of the same par value. This corporation is organized for the production of honey. The directors of the subsidiary corporation, the Western Honey Corporation, are: John V. Filipini, director Swiss-American Bank of Petaluma; George Gale of San Francisco, public accountant; C. P. Hale of San Francisco, president of the Union Fish Company and Alaska Cod Company; C. W. Weld of San Francisco, who is the resident manager of the Crane Company; George H. Kahn, who is a well known business man of San Francisco and is engaged in the optical business; Edward R. Solinsky of San Francisco, attorney at law. The Western Honey Corporation will operate from 3000 to 5000 colonies of bees in Nevada and will be the largest honey-producing company in the United States."

The feature which placed the recent meeting of the Michigan Beekeepers' Association in the lime light was the action taken by the beekeepers of the State Association

in deciding to apply for membership in the American Honey Producers' League, an organization which has superseded the old National Beekeepers' Association. As an indication of confidence in the new movement, nearly \$100 was raised by subscription on the spot to pay for the first year's membership in the League. This action places Michigan beekeepers among the first in supporting the new organization and will have a direct influence, it is hoped, on the action of other States which are holding their summer meetings in the near future.

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FIELD MEETS THAT THE EDITOR HAS ATTENDED.

The Editor of Gleanings has attended several field meets during the last two months. There were so many of them that it is impossible to give more than a passing reference to each. The first of the season was at Newark, O., July 17. Another county meet was held at Ashtabula, O., on July 22. The last mentioned was held at the apiary that supplies the big Griswold greenhouses in the vicinity. It is not often that the Ohio beekeepers can get up two such enthusiastic county meetings as these proved to be, but both the Ashtabula and Newark meetings were a big success.

On July 26 there was a good meeting of beekeepers held at Medina, Mich., at which Mr. Keltz and Gleanings' Editor spoke. On July 28 and 29 was held the Michigan State Beekeepers' field meet at Boyne City. At this meet there were several prominent speakers from outside the State: Mr. McMurray of Wisconsin; Mr. Achord of Alabama, and Mr. Dadant of Illinois. The attendance was large, and the enthusiasm was of the best. It was decided at this meeting to affiliate with the American Honey Producers' League. B. F. Kindig, State Apiarist, and Mr. Keltz, his assistant, have done very much to develop beekeeping in Michigan.

On July 31 the Editor attended the field meet of the Western New York Beekeepers' Association held at West Valley, N. Y. This was well attended. Among the speakers were R. F. Holtermann, O. L. Hershiser, and Deroy Taylor. The regular State Association field meet was held at Groton, N. Y., at the home of A. N. Cogshall on Aug. 6. There was a very large attendance, with speakers from other States. At this meet, G. G. Atwood, director of plant industry, Department of Agriculture; Dean A. R. Mann of the College of Agriculture and Director of Extension Service at Cornell, spoke. Both men are giving their hearty support to the beekeepers of their State. Mr. Hawkins of the G. B. Lewis Company, and the Editor of Gleanings were present and spoke.

On August 10 and 11 there was held at Elm Grove, near Wheeling, W. Va., a field meet of the West Virginia Beekeepers' Association. Mr. George S. Demuth of the Bureau of Entomology gave an address that was enthusiastically received.

## COLONIES

that are provided with young queens often rear considerable brood in the early fall. Also, in many northern

localities where there is a fall flow of aster, goldenrod, heartsease, etc., early fall finds the brood-chambers so crowded with brood that there is no room for more stores. In such cases the beekeeper will need to wait until later before seeing that his colonies are provided with enough stores for winter. But in the fall, as soon as it is found that there is but little brood in the hive, the colonies should be carefully examined and more stores provided if they have not enough to last them thru the winter and until the next honey flow.

### Stores Needed.

Strong colonies will need from 30 to 40 pounds of stores, the amount depending on the size of the colony. In the South as much as 50 pounds is sometimes required. A frame full of honey weighs five or six pounds, so that, by handling the combs, it will be possible to make a pretty good estimate of the amount that should be given each colony. We always make it a practice to be very generous when making this estimate, and not estimate the unsealed stores, for, of course, most of this will be used by the bees before winter.

### Giving Combs of Honey.

In the July issue of *Gleanings* we strongly

## TALKS TO BEGINNERS

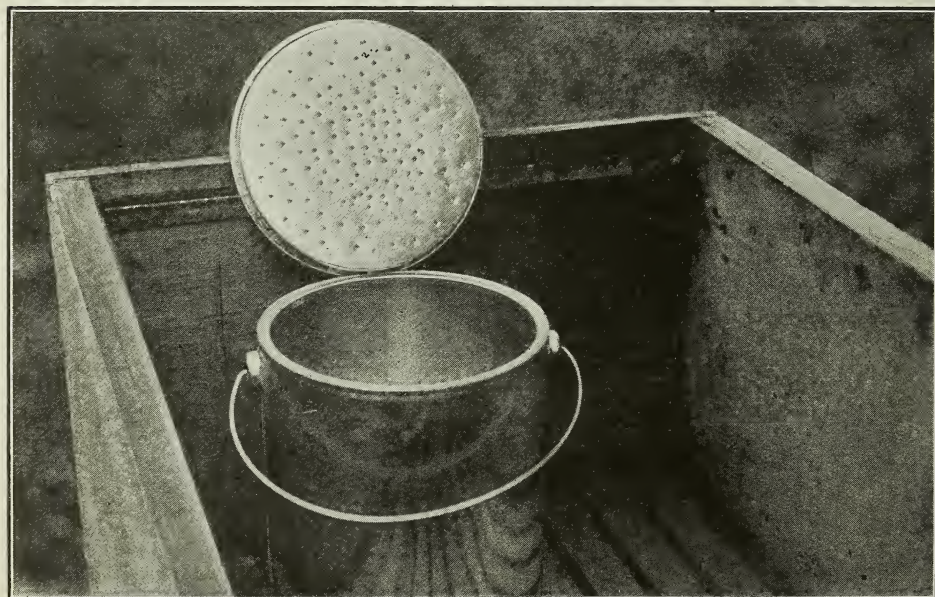
By Iona Fowls

urged that enough combs of honey be saved to carry the bees thru until the next honey flow, for it surely does not pay to go to the trouble of extracting and

disposing of the honey and then feed syrup when sugar is as high as at present. If this advice has been followed, the question of stores need give the beginner little concern, for those combs with but little honey may simply be replaced by full combs of honey. Those who do not intend to open their hives in the spring will need to leave all the frames in the hive; but those who winter outdoors and are willing to go to the extra trouble of examining the colonies in the spring and giving more stores if required, may contract the space which the bees are compelled to keep warm during the winter, and may do this by removing two or three combs from the hive, crowding the frames over and placing a division-board next to the vacant space, which is left at the side from which the colder winds may be expected during the winter—usually the west or north. Next month we shall tell how this vacant space is to be packed for winter.

### Who Should Feed Syrup.

In case one has not saved enough stores in combs he will need to feed a sugar syrup made of two parts of sugar to one of water. Such feeding should be done as early as the condition of the colonies will permit; for if fed so late that the bees have not



The 5- or 10-pound friction-top pails with pierced lids make good feeders. Two parts of sugar to one of water is about right.



time enough to ripen it before cold weather the stores will be too thin for good wintering. Besides those who have not been foresighted enough to save honey stores for wintering, there is also another class of beginners who will find it a good plan to feed syrup. We refer to those who live where there is a fall flow of honey of inferior quality. Honeydew or honey gathered so late that it is not sufficiently ripened, often causes dysentery and death of colonies before spring. The reason for this is because the consumption of such stores results in more waste matter accumulating in the intestines of the bees; and since they are unable to expel this waste matter except during flight, such stores usually cause dysentery during winter months when the bees are unable to have frequent cleansing flights. Whenever such stores have been gathered by the bees, therefore, it is a wise plan to feed as much as 10 pounds of sugar syrup. This will be stored right on top of the undesirable stores; and since the bees during the coldest weather will not consume more than 10 pounds, they will not begin using the poor stores until spring, when they will be able to have frequent flights. At this time of the year such stores will do no harm.

#### Examination of Colonies.

When looking thru the hives to determine the amount of stores, and perhaps to contract the brood-chamber, care should be taken not to allow the bees to begin robbing. No hive should be open for any length of time; and if the colonies should begin robbing, the entrances should be contracted as described in the July "Talks to Beginners."

If any weak or queenless colonies are found they should be united; or if the queenless one is strong, a queen should be introduced. Any combs that are found filled with pollen, or combs that are crooked, or that contain a large amount of drone comb, should be removed. If such comb happens to have brood in at the time of examination, it may be placed at one side of the hive so that it may be removed later before packing for winter.

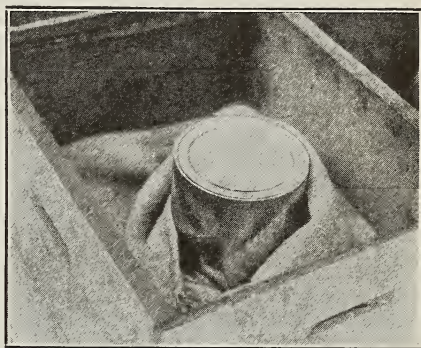
#### How to Feed Syrup.

About the best way to feed syrup is to give it in five or ten pound friction-top pails with pierced lids. The lids are pierced with about 130 nail holes made by a three-penny nail, or they may be purchased already pierced. This is really a cheap feeder; for after feeding the pail may be used as a container, only, of course, it will be necessary to have an extra cover that is not pierced to sell with the pail of honey. In this way one may have good new feeders each year and at no expense. When ready to feed, an empty deep super is placed over the brood-chamber, the pail filled with warm syrup made of two parts of sugar to one of water, and inverted directly on top of the brood-combs: the pail and the tops of the frames covered warm with burlap or other covering to retain the warmth of the cluster;

and then the inner and the outer cover are replaced over the added super.

In about 24 hours the bees will probably have removed the syrup and stored it for winter use. If the bees are slow about removing the syrup, they will probably take the remainder better if it is again warmed.

Lacking a friction-top pail one may place an open dish of syrup over the frames of the brood-chamber; but in this case it will be necessary to place grass or other material in the syrup so that the bees may get it



The feed pail and top of frames covered with an old sack to conserve the heat of the hive.

without danger of drowning. When feeding in an open dish in this way the bees will begin work on the syrup more readily if a little grass is dipped into the syrup and then placed so as to extend from the edge of the dish to the tops of the frames. The bees will immediately climb this sticky ladder and begin work on the syrup in the dish. When covering the tops of the frames and the dish to conserve the warmth of the cluster, enough room should be left between the cloth and the dish so that the bees can easily pass between the dish and the combs.

#### Wintering in Single-walled Hives.

So far in this "Talk" we have taken it for granted that the beginner has double-walled hives as we previously advised. However, for the sake of those who have their colonies in single-walled hives we shall suggest how they also may be safely wintered.

Those beekeepers who have good stores and dry well-ventilated cellars that may be kept darkened at an even temperature of about 45 or 50 degrees, and who live in a locality where the average winter temperature falls as low as 15 degrees Fahrenheit, may easily winter in the cellar those colonies that are in single-walled hives. Also weak colonies covering less than six frames may be wintered in the cellar to advantage. When wintered in the cellar less stores will be required. Probably 20 to 25 pounds will be sufficient.

The subject of packing and the actual preparation of the single-walled and double-walled hives for winter will be discussed next month.

THE peculiar situation noted by J. L. Byer in August Gleanings, is that the disappearing disease showed up under such condition as ours when we wrote you years ago concerning it. A good honey flow was on, with continued wet weather; this being the case, do not doubt one minute but what our conclusions were fairly correct; that the moisture in the nectar set up some fermentation which caused the trouble. More likely just as soon as weather conditions changed the bees recovered and the trouble disappeared. That was our experience here and do not doubt but what it will be his."—E. J. Ladd, Portland, Ore.

"Letters from the southeast and northwest parts of this State and so far west as Ames, state that there was little or no white clover in sight. Also letters from western parts of Illinois indicate an almost total failure of the white clover, but stated that the prospects for a fall flow are good, as it will be here."—A. F. Bonney, Crawford County, Ia., Aug. 3.

"The experience of the past late and cold spring has caused me to change my mind about the use of tarred paper wrappings instead of packing. I shall make packing cases this fall with four inches of packing for use in the future. After canvassing the district pretty thoroly I find that the bees well packed in cases came thru in better condition than those did with tar paper packing, and stand off disease much better than those with no winter protection."—W. H. Lewis, Edmonds, B. C.

"It may be of interest to many of our beekeepers to know that among the number who organized the Michigan Beekeepers' Association at Jackson in 1867 were A. J. Cook of Owosso, who later wrote Cook's Manual of the Apiary; M. M. Baldrige of St. Charles, Ill., who has since achieved a wide reputation as a beekeeper; and Wm. J. Beal of Rollin, who served the State Agricultural College for more than 40 years after as Professor of Botany. Within the next three or four years Jas. Heddon of Dowagiac, T. F. Bingham of Allegan, and Frank Benton of Shelby became prominently identified with the organization. All these have since achieved national or international prominence."—B. F. Kindig, East Lansing, Mich.

A beekeeper in Canada lived in a village. Nearby lived another beekeeper. The latter died, and his widow tried to keep on with the bees. She consulted the beekeeper of the village who helped her. He happened to be a widower, and later they married. When visiting this man in company with a

## BEES, MEN AND THINGS

(You may find it here)

friend, I said: "There is a romance about your beekeeping, is there not?" My friend replied: "I helped her with her bees formerly, and now she

helps me." A pretty short love story.—A. W. Frodsham, Chautauqua County, N. Y.

"The rain in May and June spoiled the prospect of a big spring crop of honey. Most bees are kept in box hives here, altho a few are using patent hives. An abundance of smartweed is coming on for a fall crop. Plenty of tupelo, gum, and sumac near here."—Maurice D. Bone, Lawrence County, Ark.

I have been reading in the A B C and X Y Z of Bee Culture the articles on tupelo gum honey of Florida. We have the same conditions here in southeast Texas. The banks of the Neches River are lined on either side with both the white and black tupelo gum. This timber is from one to two miles thick. Would not the source of nectar be as good here as in Florida? I have not had time to test the possibilities of it yet. I started the year with one colony and have built up to 25 strong colonies for spring production. The bees start to working here in February and March if the weather is right.—Wm. Meador, Jefferson County, Tex.

The hopeful view of the market from the honey producers' viewpoint is so well expressed in the August Letter to Michigan beekeepers, by B. F. Kindig, State Apiarist, that we publish it here as follows, for it contains some excellent advice:

"The price of honey, as indicated by the Government Market Report, shows somewhat of a drop since the previous report. This matter should not be taken seriously by the beekeeper, however, because honey prices nearly always slump during the mid-summer and at the time when the crop first begins to move. California and Texas both report a very good crop of honey. New York and some of the other normally large producing States, including Michigan and Wisconsin, will not have the usually large crop, due to the loss of a large per cent of their bees. This condition, together with the high price of sugar, is bound to have a very stabilizing effect on the honey market, and we look for prices equal to or better than last year. The beekeepers themselves can assist to stabilize the market by disposing of as large a part of their crop as possible locally. Every beekeeper should take this matter seriously and make a special effort to develop a local trade. Do not wholesale your honey this year until you have exhausted every possible resource for selling your honey locally. Every pound of first class Michigan white honey which is held off of the wholesale market will tend to hold the prices at a point where production is profitable. Beekeepers who get in a hurry to sell as soon as their crop is off the hives always tend to create a slump in the honey market. There is no reason why the price of Northern Michigan white honey should slump at all this year; if it does slump it will be largely caused by the beekeepers' throwing a large amount of honey on the market during August and September, when there is normally very little demand."



ONE of the great privileges of my busy life has been the opportunities I have had to be in close touch with some of the great and good men of the present century; and I have often wondered how it happened that so many capable men,

college professors and others, have stopped their work to talk with me and answer questions of a backwoods farmer's boy who never had an opportunity to get more than a common-school education. When I was of a very early age I showed my love of books and wanting to know what was going on in this great world. My parents discussed the matter of sending me to college; but we were a family of seven. There were three older and three younger than myself. My good father started alone back in the woods. In fact, he cut down the trees to build the log house where I was born, and it did not seem possible to save up the means to send me away to school.

Well, in this Home paper I wish to make a brief mention of three great and good men with whom it has been my privilege to be in close touch during the past 50 or 60 years. My zeal for bee culture brought me in touch with Prof. A. J. Cook; and as our acquaintance ripened we found there were many rural subjects, aside from bees, where we were in close accord. From childhood up I have always been greatly interested in maple-sugar making. This was one of Professor Cook's hobbies; and at my solicitation he finally gave the world his little book, "Maple Sugar and the Sugar Bush." In the preface to that book I mentioned visiting his home in Lansing, Mich., and forming the acquaintance of his good wife and two bright children—a boy and a girl. If I am correct, Prof. A. J. Cook was one of the first if not the *very first* to introduce spraying for the preservation of fruit and other farm crops. Of course, others took up and developed it further later on. I think Professor Cook also suggested county farmers' institutes and put it in practice to a certain extent. The wonderful development of bee culture in the State of Michigan was owing largely to his efforts. At one of the beekeepers'



And their works do follow them.—REV. 14:13.  
Thou shalt love thy neighbor as thyself—LEV. 19:18.

The path of the just is as the shining light that shineth more and more unto the perfect day.—PROV. 4:18.

conventions, instead of letting one man or perhaps two or three men do all the talking. friend Cook suggested we should hear briefly from every one present. I wonder if that would not be a pretty good thing sometimes nowadays. Well, at one of these conven-

tions Professor Cook said something like this:

"Now we want to hear something from that boy away over in the corner. He can certainly give us a little talk if he does not choose to do more."

The boy in the corner, altho somewhat embarrassed at being made so conspicuous, stated briefly that their bees were kept in a sort of company arrangement, and that he and his father were the "company." At this Professor Cook suggested that it was a grand idea, and he did not know of any better business arrangement in the whole wide world than to have a boy in company with his father.\*

After some years we had a county farmer's institute here in Ohio, and by that time I had become considerably interested in agriculture, especially in gardening, and I happened to be present when T. B. Terry gave one of his famous talks in regard to potato-growing. Instead of a lot of theorizing he told exactly what he had *done* on a neglected run-down farm near Hudson, O. He told how he got out the stumps, then laid the tile for drainage, even if it was a gravelly hill. Then he told us how he grew clover and turned the clover under and grew potatoes, and got more and better potatoes (and sold them at a higher price in the then rapidly growing town of Akron) than any of the old farmers could grow. While Mr. Terry was not a college professor, he was, if I am correct, a college graduate. After the lecture was over I asked him if what he had told us had ever been put in print. He said it had not. "Then," said I, "Friend Terry, your talk tonight must be put in the form of a little book; and I want you to get at it at once, and I will send out the book." I think our book

\*This is now my son-in-law, Mr. A. L. Boyden, at the head of the honey business of The A. I. Root Company.

on bee culture was just then getting a rousing reception. He kept track of his time on the book, and I think he sent in a bill of something like 40 dollars. I said, "Here is fifty. And now I will show you what a lot of good that book is going to do." It had a big reception, and in a little time it was printed in foreign languages and made a revolution in potato-growing more or less all over the world. This happened about the time "I ran away from my own funeral by riding a bicycle." His great forte in agriculture was to get a tremendous stand of clover and then plow it under. He did this not only to grow potatoes but other farm crops; and as he had some boys and girls who wanted something to do he started them growing strawberries; and to prepare the ground for strawberries after it was well underdrained he turned under a great growth of clover, knee-high or more; and this started the strawberry book, which has had about the same reception as did the potato book.

Somewhere about 1890 at one of these same farmers' institutes I heard Prof. W. I. Chamberlain, also of Hudson, O., give a talk on underdraining, and I persuaded him to give the world a little book on tile drainage. By the way, I might mention here that my good friend Chamberlain departed this life just a few days ago at the good old age of 83 or 84. I can not begin to tell you in this brief paper what Professor Chamberlain accomplished for the world as well as for Ohio during his long and busy life. While he was a college professor at Hudson, T. B. Terry was one of his pupils; and while thus engaged Mr. Chamberlain's health failed. He did not start out riding a bicycle as I did, but he went out on to a farm a good deal as Terry did and commenced to show the world what a college professor could do in the way of *digging ditches*; and I think I have heard him say that he dug ditches and *laid tile* for 15 miles on that one farm. At my solicitation he gave the world a little book on tile drainage that has gone thru several editions and has proved to be a blessing to the world. Let me give you one illustration.

Until Mr. Chamberlain put out his book, the orthodox way of digging ditches was to dig them so wide that the digger could stand in the bottom. But our college professor had some special tools made for his ditching. He had a long narrow spade that would reach down 18 inches. Well, to push this spade down into hard clay or gravelly ground would be a pretty big feat, especially for a run-down college professor who had been kept indoors and had lost his health. Professor Chamberlain discovered

that by setting the spade down diagonally, with one edge always out in the open air, it did not require very much power to take out a three-cornered slice; and this slice would stick to the spade so it could be quickly lifted out and laid on the bank; and by the use of his tools he showed how a ditch could be dug 30 inches deep without getting down into it at all, and the tiles also could be laid more accurately and in better shape than could possibly be done in the old-fashioned way.\* Just as soon as I heard his talk I procured suitable tools and went to laying tiles on our Medina hard clay soil; and I discovered to my great delight that I too could dig better ditches, and dig them faster, than a great stout "Dutchman" who absolutely refused to follow the teachings of the book on tile drainage. Let me tell you briefly what I did.

Whenever I have published a book on *any* subject I have proposed first to "practice what I preach." Just north of our factory there is a clay sidehill of about four acres. We purchased it more to keep away undesirable neighbors than because we had any use for it. When I had the new tiles spread over the ground, the farmers who passed by said, "Why, Mr. Root, the tiles you are planning to put into that ground have probably cost you more than the land is worth." But I went ahead. Then I bought manure, which was a drug around our livery stables, and had it piled on the ground until the same farmers said that the manure was worth more than any crop I could raise. But I got it all under and grew a field of clover. Nobody around here ever saw anything like it. Then I proceeded to plow it under so as to plant potatoes as Terry did. Then the said farmers began to remonstrate, saying, "Why, Mr. Root, that clover you are plowing under is worth just now during the scarcity of hay more than any crop you can possibly raise on that land."

It was a big task to get it all under out of sight; but we did so and then planted potatoes. When digging-time came, one of the boys came down to the office and said: "Mr. Root, we have picked up 375 bushels

\*It did not take our big college professor (big in a good many ways) very long to discover that where ditches are dug a foot or more wide, or something like that, at the bottom, tons of earth were laboriously shoveled out on the bank needlessly. With tools made specially for the work he dug a finished ditch just wide enough at the bottom to admit the tiles without ever going down into the ditch at all; and with these special tools he would dig in ground so hard that an ordinary laborer would think he would have to use a pick and shovel. With so little dirt to be removed, compared with the old way, our ditching professor found he could make a much better job and do it quicker; and when the tiles were laid they retained a straight and level line, and could not well be crowded out of line by filling in.



of potatoes on one acre; and if you do not believe it, you can come and see them. The potatoes are in boxes just as we picked them up, and then we got a pole and measured off an acre. They want you to come and look at it and see if we have made any mistake."

The four acres yielded pretty much the same; and as the variety was Maule's Thoroughbred, just then being introduced, we got \$1.50 a bushel for firsts and \$1.00 for seconds. This one crop of potatoes paid for the tiles, manure, and work. The year after these potatoes were grown we put in strawberries in accordance with Terry's teachings in his book, and people came for miles around to see the biggest crop of strawberries, and not only the finest berries but a heavier yield than anybody ever saw or heard of.

If you wish to know more about Professor Chamberlain and what he accomplished during his busy life you will find accounts of it in the *Ohio Farmer* and the *Farmer and Stockman*. All three of these men were active Christians, regular in attendance at church and Sunday school. Professor Chamberlain occupied many important offices in Ohio. I see the letters "A.M." and "LL.D." following his name in many of the papers. My last visit to his place was in 1913 when he was preparing a new edition of the work on tile drainage. I remember I said at the time I rather enjoyed growing old because I was getting rid of so many responsibilities. He laughingly replied by mentioning the important office that had recently been

placed on his shoulders, and remarked that in his case it did not look very much like relief. He then asked us to walk over a little further to his home where the town of Hudson had commenced the erection of a great college or seminary; and while we were looking at the immense structure under way he suggested that the people of the region absolutely insisted that he should supervise the undertaking. Somebody, years ago, made the remark that he who had been the means of making two blades of grass grow where only one grew before, was a benefactor to the human race. Well, the three great and good men that I have been writing about this morning not only made *two* blades of grass grow, but perhaps they were the means of making untold *millions* grow where almost *none* grew before.

Once more I want to thank the Lord from the bottom of my heart that it has been my privilege to be in close touch with such men as Cook, Terry, and Chamberlain; and it has been my privilege, too, to give to the world a wider publicity to the discoveries and achievements that these good men accomplished. It was characteristic of each and every one of the three that his work and labors were not for self, but for humanity, and for the unborn humanity that is to follow after he is gone. Truly their works do follow them; and we may say, as has so often been said at funeral services: "Blessed are the dead who die in the Lord. Yea, saith the Spirit, that they may rest from their labors, and their works do follow them."



#### THE NEW ANNUAL SWEET CLOVER. REPORTS FROM FAR AND WIDE.

SIX FEET HIGH IN ABOUT NINETY DAYS.

I purchased a package of that wonderful annual sweet clover (of Field, probably) and sowed it in black waxy soil the last of April. I limed the ground before sowing, and harrowed the seed in. I also sowed the biennial with it. The annual is coming in bloom six feet high.

Pataskala, O., Aug. 2, 1920. Henry Zinn.

\* \* \*

STANDING THRU THE WINTER IN SOUTH CAROLINA.

The sweet clover grew 3 feet high last fall, but died down and came right out again from the roots. Altho it never bloomed the first year, it has been in bloom now five weeks, and the bees are still humming over it. I have started gathering the seed, and I hope to gather enough to plant  $\frac{1}{4}$  acre in September. I want to try planting this time in the fall and see if it will bloom the following year.

L. J. Davison.

York, S. C., July 12, 1920.

\* \* \*

"JOHNNY APPLESEED."

I am taking advantage of your kind offer of a few seeds of the new annual sweet clover as men-

tioned by you in *Gleanings in Bee Culture*, and enclosing a stamped envelope for the same if you have any to spare. As you may guess, I am a beekeeper, farmer, and sweet-clover fan. The biennial variety doubled my crops of light honey, and made beekeeping profitable in a rather poor location. I think the New Annual has very great possibilities, and you, by distributing it far and wide, are truly the "Johnny Appleseed" of beedom. Nassau, N. Y., Aug. 1, 1920. Walter E. Bain.

\* \* \*

SEVEN FEET HIGH IN  $3\frac{1}{2}$  MONTHS.

I planted two rows of the annual white sweet clover in my garden about fifty feet long. It came up a fairly good stand, and I worked it right well. Was planted on the eighth of April, and now on the 20th of this month it is over seven feet tall. All the stalks are not that tall, but it will average over six feet, the entire lot.

The bees are working it fine. It has put on seeds wonderfully, and keeps blooming. I think I made one mistake in planting some black-eyed peas close to it, for the peas are trying to climb over it, and I have had to cut the vines loose. So far I



Part of Henry Field's 5-acre field of the Annual on July 31. It is drilled in rows three feet apart.

am mighty well pleased with it as a clover, tho this is the first I have ever seen, and if it continues to grow until frost, it will be 12 feet, for it is nearly as long until frost as it has been growing.

Myrtle, Miss., July 21, 1920. F. R. Rockett.

\* \* \*

#### SIX ACRES OF THE NEW ANNUAL.

Our crop of the White Annual Sweet Clover is doing fine, and we will have a good supply of seed to sell later on. Some of the earliest we can hand-pick and have ready to send out in September. We have about six acres, all garden-grown and certain to be absolutely pure. We would rather grow only a comparatively small amount and be absolutely sure of its purity and condition, than to handle a big lot and take any chances whatever on purity.

Henry Field Seed Company.

By Henry Field, President.

Shenandoah, Ia., Aug. 4, 1920.

\* \* \*

#### THE NEW ANNUAL WINTERS OVER IN OREGON.

The seed of the New Annual sweet clover, which you sent me last year, came rather late; so I planted only about one-half of it. It grew only about three feet high before frost; but this spring it was still alive, and at the present time it is about the same in height, with a few blossoms opening. I purchased an ounce of the seed from the Henry Field Seed Co. and have a fair stand. It is about the same in size as the plants which wintered, but no blossoms appear yet. I have a plot of the white biennial about eight feet high with no bloom yet.

Cushman, Ore., July 17, 1920. L. W. Derrin.

[Here is something still later:]

The biennial sweet clover is now 10 to 12 feet high, many stalks being 11 feet, and just starting to bloom. The Annual white is about four feet with buds just starting. The Annual yellow, 3 feet 4 inches high, is in full bloom.

Cushman, Ore., July 29, 1920. L. W. Derrin.

[My good friend, you give us two important items. First, that the Annual sweet clover in your mild climate will stand over winter and then start again in the spring. Second, that you have Biennial 12 feet high.]

#### THE NEW CLOVER IN AUSTRALIA COMES UP IN THREE DAYS; UNHARMED BY FROST.

I planted the seed of the sweet clover on March 3. It started coming up three days after, and now (June 15) the highest is over three feet, and it is coming out in full flower. It has had three severe frosts, but the flowers are still there and it is still growing.

T. Graham.

Memerambi, Queensland, Australia, June 15, 1920.

\* \* \*

#### REPORT FROM THE PHOTOGRAPHER.

On July 22 I went to see the clover but I found no growth to speak of since the last picture; so I did not take any more pictures. The clover was going to seed, and the birds were eating the seed.

Will S. Potter.

Bradentown, Fla., Aug. 5, 1920.

\* \* \*

#### FALL PLANTING IN CALIFORNIA; NEW CLOVER PROMISES MUCH FOR ORCHARDS.

The new clover would seem to have exactly the characteristics necessary for a satisfactory early summer cover crop; its extremely rapid habit of growth making it possible to plant alone in February or March, and a short life cycle, serving its full purpose by June 15 or July 1, when it is turned under. This crop should certainly be given a thorough trial during the next season.

And for green manuring purposes in general and puncturing the plow soles and soil improvement the new clover undoubtedly offers much promise. Its rapidity of growth, giving heavy tonnage, and its short life cycle give it much to recommend it. At the present time there is a growing use of the biennial sweet clover in citrus orchards, which would undoubtedly switch to the new clover, if it proved up, just as soon as it had been given a trial and seed was available.

The writer knows of one planting of the new clover in this part of the State, and it has certainly lived up to its advance notices. Planted late last fall, at the present time seed is forming and the average growth in the field will run from six to eight feet.—(From Los Angeles Times of July 18.)



"WOULD BE WILLING TO WALK TO AMES, IOWA."

Having read in the R. N.-Y. that you have planted the New Annual sweet clover in Florida with marked success I take the liberty of asking you for more information. I planted the old biennial sweet clover last fall and was surprised to find that here in Florida it, too, is an annual. I planted about Oct. 1, and it blossomed the last of May. It grew all winter, but slowly, and on March 1 was barely 6 inches high. Red clover was nearly full grown by the last of March, and crimson clover was then in full bloom. The great value of growing the clovers in Florida is that they will grow in the winter time, and it is possible to turn under crimson clover and red clover in time to plant early corn; but the biennial sweet clover does not make much winter growth.

The question in my mind is, "Will the Annual make enough growth, say before March 15, to make it a valuable source of humus? for, as you know, that is the thing most difficult to obtain and the most necessary constituent to supply to all southern soils. There are plenty of summer-growing legumes to supply nitrogen, and crimson clover seems to me to be the best leguminous cover crop. Both burr clover and crimson clover make fine winter pastures and Kudzu makes a better hay and a heavier tonnage than sweet clover, and it is without question the most valuable plant for permanent meadows and pastures of any forage crop in the world.

You say that the Annual grew six feet high in 98 days. If it will make such a growth as that between Oct. 1 and Feb. 15 (about 140 days) here in Jefferson County, North Florida, then I would be willing to walk to Ames, Iowa, to get a few seeds. "Cherokee Farms."

Monticello, Fla., July 31, 1920.

\* \* \*

#### THAT ANNUAL WHITE SWEET CLOVER.

In New Jersey.—We have a small quantity growing in good soil. It started four days after seeding, and is now making a remarkable growth, although it is not old enough yet to tell just what it will come to. Thus far it grows faster than any legume we have ever had experience with. Many readers report a similar growth.

In the South.—A. I. Root of Ohio has tried this clover in Florida, and has made a success of it there. He wrote us on July 1 that the clover was six feet high when he last heard of it, and that this growth of six feet had been made in 98 days in the Florida climate. His plants in Ohio were growing at the rate of an inch and a half every 24 hours. It seems hard to believe such statements, but from the way our own crop has started it seems fully probable to us. When we consider that such a growth can be made in a short season, and when we realize that sweet clover has about the same analysis as alfalfa, we can imagine the possibilities of such a crop in our Northern farming. If the annual clover proves as vigorous as the reports indicate, it will be quite possible in the latitude of New Jersey to grow an early farm crop and promptly follow it with this sweet clover and produce a crop by October which will be equal in value to eight or ten loads of manure to the acre. Such a crop could be followed by rye, which could be plowed under the following spring, or left on the ground as a cover crop. The possibilities of such a quick growth in the South are almost beyond calculation, and we think that if after experiment this annual clover proves what is claimed for it, that it will be generally adopted and greatly change our northern system of farming.

The Biennial Form.—We have the old two-year sweet clover growing in our apple orchard. There was a light seeding several years ago and after this crop was cut, a few scattering plants started. We let these form seed and then cut with the mower, forking the cutting around the trees. This dis-

tributed the seed, and this plan, followed year after year, has thickened the seeding and made a heavy crop, which makes a fine mulch for the trees.

Growing Like a Weed.—In many places, sweet clover is regarded as a weed, and farmers fight it as they do ragweed. We have one case where a farmer bought what he supposed was white sweet clover to be used for hay or pasture. Now he claims that the field is well spotted with the yellow sweet clover, which the neighbors regard as a pest. They insist that he must plow the whole thing right under before it seeds. The growth is so heavy that it would require a tractor to put it all under, and the farmer thinks the seedsman should pay for this work, because the seed was mixed. In our own orchard this mixture would make no difference.—(From Rural New-Yorker of July 31.)

\* \* \*

#### THE WONDERFUL GROWTH OF THE NEW ANNUAL CLOVER.

Ripe seeds from our Florida sweet clover were received and sown July 17. By the way, scarified seeds in very rich soil with just the right amount of moisture needed, and just the right temperature, say somewhere about 70, will sometimes germinate in a little less than three days. The seeds from Florida with the hulls on were quite a little longer in coming up than the above; but today, Aug. 17, just one month, some of the little plants are 5 to 6 inches high and have been transplanted. The growth the first month is not particularly rapid. After the first two seed leaves, a little round leaf shoots up on a little thin spine—so thin, indeed, that it seems almost invisible. Well, this little round leaf faces the sun all day long. It faces east in the morning and faces west at night. If there does not seem to be plenty of light this little plant pushes away up, and the bright-green single leaf seems almost suspended in the air. After this leaf on the spine, grows another stem with the *three leaves* characteristic of all clovers. The very first thing the little plant does is to push down a slender taproot, and this little root goes straight down about as fast as or faster than the top goes up into the air. After the plants are from six inches to a foot high, when the taproot has gone down as far, or a little further, then the growth is very rapid. On one field of five acres where the biennial now stands from one to two feet high, on one side of the field is a single row of the new annual; and these new annual plants are five feet tall and full of bloom and bees, altho the seed was planted *almost a month later*. Somebody suggested a spell ago that wood ashes are even better than lime when preparing ground for sweet clover, or, in fact, any of the clovers. Well, this one row spoken of above, that has made such a splendid growth, had, about a year ago, a heavy dressing of coal ashes containing also some wood ashes.

## Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

### REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

W. B. Wallin, D. R. Townsend, A. J. Heard, C. E. Woodhull, J. E. Crane & Son, S. T. Fish & Co., Wm. Craig, E. E. Lawrence, Allen R. Simmons, Robt. B. Spicer, J. F. Michael, Ross B. Scott, J. D. Harrah, Dr. C. E. Sheldon, J. M. Cutts, H. M. Stich, R. B. Grout, The Marugg Co., H. J. Dahl, A. H. Patch, Harrison's Nurseries, F. M. Russell, John N. Prothero.

### HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Honey in glass or tin. Write for prices. W. M. Peacock, Mapleton, Iowa.

FOR SALE.—Clover and basswood honey in new 60-lb. cans, two cans per case. Bert Smith, Romulus, N. Y.

FOR SALE.—Clover-basswood honey in new 60-lb. cans and 5-lb. pails. W. B. Crane, McComb, Ohio.

FOR SALE.—Very choice white-clover extracted honey in 60-lb. cans. Noah Bordner, Holgate, Ohio.

FOR SALE.—Finest Michigan basswood and clover honey at \$30.00 per double case of 60-lb. cans. Sample 25c. A. S. Tedman, Weston, Mich.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Derooy Taylor Co., Newark, N. Y.

FOR SALE.—White clover and basswood blend honey in new 60-lb. cans, two in case. Sample 20c. George M. Soward, Cato, N. Y.

FOR SALE.—We have a very choice lot of white clover honey at 25c per lb in 60-lb. cans; also some very choice fall honey at same price. M. V. Facey, Preston, Minn.

FOR SALE.—New crop extracted clover honey, two 60-lb. cans to case, \$30.00 per case; in 5-lb. pails, \$1.50 per pail; packed 12 pails to case or 30 to 50 pails per barrel. H. G. Quirin, Bellevue, O.

FOR SALE.—Light Haitian honey, 400-lb. barrels, 19c lb.; 60-lb. cans white sweet-clover honey, 23c lb.; new white sage, 25c lb., f. o. b. New York. 60-lb. cans shipped two in a case. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—About 40,000 lbs. extra-fancy white-clover honey. Price f. o. b. Kalona, case, 2 60-lb. cans, 22c a lb.; case, 1 60-lb. can, 23c a lb. Sample bottle by mail, 20c. J. M. Gingerich, Kalona, Iowa.

RASPBERRY HONEY for sale, left on the hive until thoroughly ripened by the bees. It is thick, rich, and delicious. In new 60-lb. cans. Price, two cans in one case, \$30.00. One can, \$15.50. Sample, 25c. Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE.—Finest Michigan raspberry, basswood, and clover No. 2 white comb, \$6.50 per case; No. 1, \$7.00; fancy, \$7.50; extra fancy, \$8.00; 24 Danz, sections to case. Extracted, 60-lb. can, 25c per lb. W. A. Latshaw Co., Clarion, Mich.

FOR SALE.—Finest quality white-clover extracted honey, well ripened and of good flavor, put up in new 60-lb. and 12-lb. cans, and 10- and 5-lb. pails. Also some nice comb honey.

R. C. Ortleib, Dolgeville, N. Y.

FOR SALE.—Finest quality clover extracted honey, well ripened and of a good flavor, in 60-lb. cans, two cans to the case, at 25c per pound, f. o. b. here. Also 500 cases of No. 1 comb honey.

J. D. Beals, Oto, Iowa.

FOR SALE.—Clover extracted honey of unsurpassed quality; new cans and cases, prompt shipment. You will be pleased with "Townsend's quality" extracted honey. Not a single pound extracted until long after the flow was over; thus the quality. Would advise intending purchasers to order early, as we have only a half crop. Address with remittance.

E. D. Townsend & Sons, Northstar, Mich.

OVER 10,000 POUNDS of choice Michigan honey, put up in 5 different styles of packages, have been ordered for sale and exhibit at the Michigan State Fair, to be held at Detroit, Sept. 3-12. We invite dealers and packers to visit this exhibit and let us make quotations on any quantity wanted, either in the packages on exhibition, or in packages of their own selection. No quotation given unless the amount wanted and style of package are designated. We can furnish thousands of pounds of the choicest Michigan honey. E. B. Tyrrell, Supt. Apiary Dept., Michigan State Fair, 502 Bowles Bldg., Detroit, Mich.

### HONEY AND WAX WANTED

Quote me your best price on clover honey in 60-lb. cans. E. C. Pike, St. Charles, Ills.

WANTED.—Clover extracted honey in 60-lb. cans. I. J. Stringham, Glen Cove, N. Y.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Honey, comb and extracted. State quantity and price, and send sample of extracted. A. W. Yates, Hartford, Conn.

WANTED.—Bulk comb, section and extracted honey. Write us what you have and your price. J. E. Harris, Morristown, Tenn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted. Hoffman & Hauck, Inc., Woodhaven, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax, and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance.

The A. I. Root Co., Medina, Ohio.

### FOR SALE

HONEY LABELS.—New designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.



**FOR SALE.—SUPERIOR FOUNDATION, "Best by Test."** Let us prove it. Order now.  
Superior Honey Co., Ogden, Utah.

**FOR SALE.—**Second hand honey tins, two per case, in exceptionally fine condition at 50c per case.  
Hoffman & Hauck, Inc., Woodhaven, N. Y.

How many queens have you lost introducing? Try "The Safe Way" push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

**ROOTS BEE SUPPLIES.—**For the Central Southwest Beekeeper. Beeswax wanted. Free catalog.  
Stiles Bee Supply Co., Stillwater, Okla.

**PORTER BEE ESCAPES** save honey, time and money. Great labor-savers. For sale by all dealers in bee supplies.  
R. & E. C. Porter, Lewistown, Ills.

**FOR SALE.—**Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

**FLORIDA BEEKEEPERS.—**You can save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.  
Crenshaw Bros. Seed Co., Tampa, Fla.

**FOR SALE.—**Good second-hand double-deck comb-honey shipping cases for  $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$  sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

**CANADIAN BEE SUPPLY & HONEY CO., Ltd.—**73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

**FOR SALE.—**Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beesware. Our new price list will interest you. We pay 38c in cash, and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

## WANTS AND EXCHANGE

**WANTED.—**Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.  
Superior Honey Co., Ogden, Utah.

**WANTED.—**Fully drawn-out combs, any-sized frames. Free from disease.  
Geo. Karov, Cable, Wisc.

**WANTED.—**Hand foundation mill, or just the rollers; also Barnes saw. State condition and lowest price. John M. Hewlett, 61 Ballston Rd., Schenectady, N. Y.

**BEEES WANTED.—**In box hives in the Gulf States. Any one knowing of a quantity of cheap bees, in a good location in the South, will confer a favor upon E. D. Townsend & Sons, Northstar, Mich., by advising them of the location.

**WANTED.—**Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

**OLD COMBS WANTED.—**Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you.  
Dadant & Sons, Hamilton, Illinois.

## REAL ESTATE

**FOR SALE.—**A farm of 350 acres; 150 acres tillage; 150 acres pasture; will graze 100 head of grown stock; 50 acres virgin timber, arable if cleared. Rich soil, well fenced and watered, and fair improvements in good condition, \$20 per acre. A farm of 160 acres, unimproved, one mile from good town, \$5000. See these farms before crops are harvested. Terms of sale to suit buyers.  
B. F. Averill, Howardsville, Va.

**FLORIDA.—**A gentleman farmer home on the river. Fishing and boating. 14 miles from Tampa on brick road. 15 acres good land, nice new bungalow, garage, stable, outbuildings, shade trees, flowers, shrubbery, small orange grove. Ideal bee location. Price, \$5000. Owner moving to larger property. Photograph if desired.  
Edmund J. Courtot, Owner, Sutherland, Fla.

## BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list.  
Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens, \$1.00 each.  
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, \$1.25 each; dozen, \$12.00. E. A. Simmons, Greenville, Ala.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

When it's GOLDEN it's Phelps. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.  
C. W. Phelps & Son, Binghamton, N. Y.

**FOR SALE.—**Italian queens, three-banded and Goldens, untested, \$1.25 each; 6, \$6.50; 12, \$13.00. Now ready.  
G. H. Merrill, Pickens, S. C.

Queens of Dr. Miller's strain, untested, \$1.25 each; \$12.50 per dozen; tested, \$1.75 each; \$18.00 per dozen. Safe arrival and satisfaction guaranteed. Geo. A. Hummer & Sons, Prairie Point, Miss.

**FOR SALE.—**My famous three-band Italian queens, one for \$1.25; six for \$7.00. From June 1 to November.  
J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

Golden queens ready April 15th. One queen, \$1.50; 6, \$7.50; 12, \$14.00; 100, \$100.00. Virgins, 75c each.  
W. W. Talley, Greenville, R. D. No. 4, Ala.

**FOR SALE.—**Golden queens. Orders filled in rotation. Untested, \$1.10; select untested, \$1.50 each. Safe arrival.  
Hazel V. Bonkemeyer, Randleman, R. D. 2, N. C.

**BEEES BY THE POUND.—**Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas. E. B. Ault, Prop.

**PHELPS' GOLDEN QUEENS** will please you. Mated, \$2.00. Try one and you will be convinced.  
C. W. Phelps & Son, Binghamton, N. Y.

**FOR SALE.—**Leather-colored Italian queens from Dr. Miller's breeder. Virgins, \$1.00; tested, \$1.50; July 1, 5, \$6.00; 10, \$11.00.  
F. R. Davis, Stanfordville, Dutchess Co., N. Y.

**QUEENS OF QUALITY.—**Our Hand-Moore strain of three-banded Italians are beautiful, and good honey-gatherers. Bred strictly for business. Untested, \$1.50; half-dozen, \$8.00. Select, \$2.00.  
W. A. Latshaw Co., Clarion, Mich.

**FLORIDA BEES FOR SALE.**—20 colonies, mostly Italians, healthy so far as I know. Come quick. No useless correspondence. \$200.  
J. H. Collins, Cassadaga, Volusia Co., Fla.

**FOR SALE.**—Full colonies of bees (with Italian queen) in 10-frame Root Co. hives, \$14.00 each, two for \$27.00.

J. W. Harrison, White Pigeon, Mich.

**PURE ITALIAN QUEENS.**—Not the cheapest, but the best we can grow; bright yellow, with clean bill of health; sure to please; such as we use in our own yards. Untested, \$1.25; \$14.00 per dozen.

J. B. Notestein, Bradentown, Fla.

**FOR SALE.**—Three-banded Italian queens. Untested queens, \$1.25 each; 6, \$6.50; 12, \$12.00. Select untested, \$1.50 each. Satisfaction guaranteed.

W. T. Perdue & Sons, Fort Deposit, R. D. No. 1, Ala.

Highest grade three-banded Italian queens. Virgins, 75c each; untested, each, \$1.25; 6, \$6.50; 12, \$12.00; 50, \$47.50; nuclei, \$3.00 per frame, queens extra. No disease, and satisfaction guaranteed.

A. E. Crandall, Berlin, Conn.

**FOR SALE.**—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, \$1.50 each. After June 15, \$1.30 each; \$12.00 for 10; \$1.10 each when 25 or more are ordered.

Alan Latham, Norwichtown, Conn.

**PHELPS' GOLDEN ITALIAN QUEENS** combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GEN- TLE. Virgins, 1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, \$2.00; 6, \$8.00; doz., \$15.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

We have enlarged our queen-yard considerably. We can take care of orders better than ever, large or small. Untested queens, \$1.50 each, or \$15.00 per dozen. J. A. Jones & Son, Montgomery, R. D. No. 1, box 11a, Ala.

**FOR SALE.**—Golden Italian queens, untested, \$1.15; 6 for \$6.50; 12 or more, \$1.00 each; tested, \$2.00 each; select tested, \$3.00 each; extra select tested, \$4.00 each. No bees for sale.

D. T. Gaster, Randleman, R. D. 2, N. C.

We are now booking orders for early spring delivery of two and three frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.

Sarasota Bee Co., Sarasota, Fla.

**FOR SALE.**—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

"Those who think must govern those who toil," for the busy bee man who must keep an efficient force always at his command in the hive there's no helper equal to Victor's Italian queens. Mated, \$1.25 each; 6, \$7.00; 12, \$13.50.

Julius Victor, Martinsville, N. Y.

**TESTED QUEENS.**—Three-banded leather colored Italians, descended from the celebrated Moore strain. These queens are now one year or less old, right in their prime. Price, \$2.00 each. Safe arrival and satisfaction guaranteed. A few breeding queens, \$5.00 each.

Elmer Hutchinson & Son, Lake City, Mich.

**FOR SALE.**—By return mail, three-banded leather-colored Italian queens from the very best honey-gathering strain, \$1.50 each, or \$15.00 per dozen; tested, \$2.00 each. You can buy cheaper queens elsewhere, but you can not get better queens anywhere. Delivery and satisfaction guaranteed.

Jasper Knight, Haynesville, Ala.

**DAY-OLD QUEENS** at practical prices. Superior improved Italian stock. Mailed in safety introducing cages. Safe arrival guaranteed to any part of the U. S. and Canada. Send for circular. Prices, 1, 75c; 10, \$6.00; 100, \$60.00.

James McKee, Riverside, Calif.

**QUEENS.**—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, \$2.00; six, \$9.00; twelve, \$16.80. After June 1, one \$1.50; six, \$8.00; twelve, \$14.00. Select tested, \$3.00 each. Write for prices per 100. Descriptive circular free.

Hardin S. Foster, Dept. G, Columbia, Tenn.

**ITALIAN QUEENS.**—Three-banded, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, \$1.25 each; 12 or more, \$1.00 each. Send for circular.

J. H. Haughey, Berrien Springs, Mich.

**ITALIAN QUEENS.**—The Old Reliable three-banded Italians, the best all-around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, \$1.50; 6, \$8.00; 12, \$15.00. Tested, \$2.25; 6, \$12.00; 12, \$22.00. Selected tested, \$3.00 each. Descriptive circular and price list free.

John G. Miller, 723 C St., Corpus Christi, Texas.

**WESTERN HEADQUARTERS FOR PURE ITALIAN QUEENS,** the old reliable, three-banded stock, bred strictly for business. My select untested are LAYING before being caged; less loss introducing. Price, after Aug. 1, 1, \$1.50; 12 or more, \$1.25 each. Tested, \$2.00. Breeders, \$5.00. Circular free.

J. E. Wing, 155 Schiele Ave., San Jose, Calif.

**FOR SALE.**—Pure Italian queens, golden or leather-colored, packages and nuclei; 1 untested queen, \$1.50; 6, \$7.50; 12, \$13.50; 50, \$55.00; 100, \$100; virgins, 50c each; packages 24 and under, \$2.25 per pound; 25 and over \$2.00 per pound; nuclei, 1-frame, \$4.00; 2-frame, \$6.00; 3-frame, \$7.50; queens extra. One-story 10-frame colony with queens, \$12.00. Golden Star Apiaries, Near Almaden, near San Jose, Calif.

## MISCELLANEOUS

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

**FOR SALE.**—Golden Seal seed.

S. Pitts, Stronghurst, Ills.

**FOR SALE.**—Genuine White Annual Sweet Clover. Garden-grown on our own grounds and guaranteed pure. New crop seed, 1 lb., \$5.00; ¼ lb., \$1.50; 1 oz., 50c, all postpaid.

Henry Field Seed Co., Shenandoah, Iowa.

## HELP WANTED

**WANTED.**—All year round position with bees, preferably New York. Moderate salary with opportunity for advancement desired.

Daniel B. Hotaling, Chautauqua, N. Y.

**WANTED.**—Beekeeper for apiary at Lilly Orchard; married man able to grade and pack fruit preferred. Come and get a job during apple-picking and size up the location. Can give work in orchard when not busy with bees.

H. W. Funk, Normal, Illinois.

## SITUATIONS WANTED

**WANTED.**—A position in a southern bee-yard, December 1.

C. W. Kellogg, Columbiana, O.



## INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, \$1.00; Tested, \$1.50. Nucleus, \$2 per frame, queen extra.

J.W.SHERMAN, VALDOSTA, GA.

## MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE

From 1897 to 1920 the Northeastern Branch of The A. I. Root Company

Prompt and Efficient Service  
BECAUSE—Only Root's Goods are sold. It is a business with us—not a side line. Eight mails daily. Two lines of railway.  
If you have not received 1920 catalog send name at once.

## QUEENS

Golden and three-band Italians. The kind that fill from two to four supers.  
Untested, \$2.00 each; \$11.00 for 6; \$45.00 for 25. No discount for 50 or 100 lots. Tested, \$3.00 each; \$16.00 for 6. Send orders for queens as early as possible. Full colonies (bees and queen) \$12.00 and \$15.00 for 8- and 10-frame Root Co. hives.  
S. C. R. I. Red eggs for hatching (280 egg trapnested strains) \$2.50 per 15. \$12.00 per 100.

MISS LULU GOODWIN, Mankato, Box 294, Minn.



## HONEY

FINEST MICHIGAN Raspberry, Basswood and Clover comb and extracted honey. Unexcelled for quality.

Crate 6 cases (24 sec.) Fancy Comb	..... \$45.00
Crate 6 cases (24 sec.) A No. 1 Comb	..... 42.00
Crate 6 cases (24 sec.) Extra Fancy	..... 48.00
Crate 6 cases (24 sec.) No. 2 comb	..... 39.00
Two cases (120 lbs.) Extracted	..... 30.00

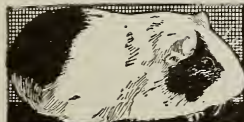
Send Today for Free Sample.

W. A. LATSHAW COMPANY, Clarion, Mich.

## NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1920 catalog send for one at once.

H. H. JEPSON, 182 Friend St., Boston, Mass.



## Raise Guinea PIGS FOR US!

We need men and women,

boys and girls everywhere to raise Guinea Pigs for us. We tell you where to get them, show you how and buy all you raise. Big opportunity for money making. Thousands needed weekly.

**Easy to Raise—Big Demand** No special experience or equipment needed. They breed the year round—are very prolific—require but little space or attention. Pay better than poultry or squabs—cost less to house, feed, keep, easier raised—less trouble, market guaranteed.

Particulars, contract, and booklet how to raise **FREE**

**CAVIES DISTRIBUTING COMPANY**  
3145 Grand Avenue, Kansas City, Mo.  
Largest Guinea Pig breeders and distributors in America.

**"Special Crops"** A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address Special Crops, Box G, Skaneateles, New York

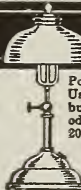
ATTENTION

## Pacific Northwest Beekeepers

We handle a full line of supplies for beekeepers, including Italian Queens. Write us your requirements and for our catalog B. It's free.

Spokane Seed Company, Spokane, Wash.

904 First Avenue



## The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

### THE BEST LIGHT CO.

306 E. 5th St., Canton, O.

## Mott's Northern-bred Italian Queens

Untested, \$1.00 each; \$12.00 per dozen. Select untested, \$1.25 each; \$15.00 per dozen.  
Select guaranteed, pure mated, \$1.50 each. Select tested, \$2.50 each.

Plans "How to Introduce Queens, and Increase." 25c

E. E. Mott, - - Glenwood, Mich.

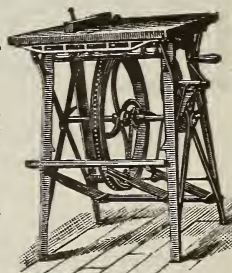
## BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

### Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO  
545 Ruby Street  
ROCKFORD, ILLINOIS



Established 1885

Write us for catalog.



## BEEKEEPERS' SUPPLIES

The Kind You Want and The Kind That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.

### Vitamines in Honey.—Continued from Page 539.

from among the multitude of charts and diagrams which accompanied the report from Prof. Hawk; but, if you could know how extremely careful I have been in writing this not to exaggerate or claim one bit more for honey than the report would justify, you would concede me that little privilege.

Dear me, I have a vision of a solemn gentleman coming toward me with a large wet blanket consisting of a remark like this: "Why get up so much excitement over the presence of the fat-soluble vitamin in comb honey? The amount of honey eaten is so small in comparison with other foods that the presence or absence of vitamins makes little difference." I refuse to be squelched. We are warned repeatedly of late that the modern civilized diet with its devitalized, demineralized, and over-refined foods has a very small margin of safety as regards valuable soluble mineral salts and the various unidentified dietary essentials. Therefore I propose three cheers for the world's oldest and most beautiful sweet, comb honey.

Next month I intend to tell you more of Prof. Hawk's report, including his experiments as to the digestibility of honey.



**"Best" Hand Lantern**

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc., needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**  
306 E. 5th St., Canton, O.

### NEWMAN'S ITALIAN QUEENS

Bred from the best. No disease. Satisfaction and safe arrival guaranteed.

Untested, \$1.50; 6, \$8.00; 12, \$15.00, Select Untested, \$2.00; 6, \$10.00; 12, \$19.00. Circular free.

A. H. NEWMAN, - - MORGAN, KY.

### Large, Hardy, Prolific Queens

Three-band Italian only. Pure mating and safe arrival guaranteed.

One, \$1.30; 6, \$7.50; 12, \$13.50; 100, \$110.00

Buckeye Bee Co., Lock Box 443 Massillon, Ohio



**World's Best Roofing at Factory Prices**

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

**Edwards "Reo" Metal Shingles**

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot-free, rust, lightning proof.

**Free Roofing Book**

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 983

**LOW PRICED GARAGES**

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles. **THE EDWARDS MFG. CO.,**  
933-983 Pike St., Cincinnati, O.

**FREE Samples & Roofing Book**

### MICHIGAN-BRED QUEENS—THREE-BANDED ITALIANS ONLY

#### TESTED DISEASE-RESISTERS

PRICES	June 15 to July 15			July 15 to Oct. 1			
	1	6	12	1	6	12	100
Untested .....	\$1.50	\$8.00	\$15.00	\$1.30	\$7.50	\$13.50	\$110.00
Select Untested .....	1.75	9.00	16.00	1.60	8.00	14.00	115.00
Select Tested any time after June 20.....				3.00	16.00	29.00	
Select Day-old Virgins after June 1.....				.60	3.50	6.50	50.00

D. A. DAVIS, 216 GREENWOOD, BIRMINGHAM, MICHIGAN

## BEEKEEPERS' SUPPLIES

New prices are now in effect, and a new condensed price list giving latest prices is nearly ready for distribution. Send for it.

### HONEY AND BEESWAX

We are using increasing quantities of choice honey to pack in glass, and can also use quantities of beeswax in preparation for next season. We are here to serve you.

#### THE A. I. ROOT COMPANY

52-54 MAIN ST.  
SAN FRANCISCO, CALIF.

OF CALIFORNIA

1824 EAST 15th ST.  
LOS ANGELES, CALIF.



## In NEW YORK

Our new offices and warehouse are now newly and permanently located in larger and better quarters owned by ourselves, at  
23 Leonard Street.

THE A. I. ROOT CO.

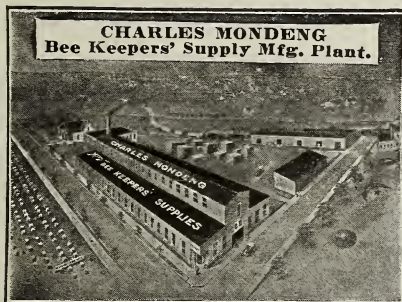
## QUEENS OF MOORE'S STRAIN OF ITALIANS

Produce Workers  
*That fill the super quick  
With honey nice and thick*

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.  
Untested queens \$1.50; 6, \$8.00; 12, \$15.00  
Select untested..\$2.00; 6, \$10.00; 12, \$19.00  
Safe arrival and satisfaction guaranteed.  
Circular free.

J. P. MOORE, Queen Breeder  
ROUTE 1 MORGAN, KY.

## BEE SUPPLIES



The largest and oldest Bee Supply manufacturer in Minnesota can offer you **bee ware** that will keep that "satisfied smile" on your face. Excellent quotations given on frames, spacing or unspacing. Send for my 1920 Catalog and Price List. **Think** it over and in thinking **be wise** and save money by placing your orders **before** the rush is on. *Will Take Beeswax in Trade at Highest Market Prices.*

CHARLES MONDENG

146 Newton Ave., N. Minneapolis, Minn.

## Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

### Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

### Carl F. Buck

The Comb-foundation Specialist  
Augusta, Kansas

Established 1899

## 200 SELECT TESTED QUEENS

Beginning August 1st, we will sell 200 select tested queens, selected from our 10 apiaries and bred from a \$200 queen. These queens are the result of 35 years of practical experience in breeding the very best strain of Italian bees that could be obtained. Our guarantee is back of every queen. If you want to requeen your bees, you could not buy a better queen for a breeder.

Prices of these select queens, \$3.00 each in any quantity. Untested \$1.75 each.

ORDERS FILLED IN ROTATION.

FRED LEININGER & SON,     -:-     DELPHOS, OHIO

## Exacting Beemen want "falcon" Queens



WE spare no pains in giving our patrons the best bred queens. Good queens are vital to the success of a honey crop and to building up strong, "producing" colonies.

### Price List of "falcon" Three-banded Italian Queens

JULY 1 TO OCTOBER 1.

	1	6	12
Untested .....	\$1.80	\$9.90	\$18.00
Select Untested .....	2.00	11.10	20.00
Tested .....	2.50	14.40	29.00
Select Tested .....	3.00	17.40	33.00

Write for Our Red Catalog

W. T. FALCONER MANUFACTURING CO.

Falconer (near Jamestown), N. Y., U. S. A.

"Where the best beehives come from"

## Sections! Sections!! Sections!!!

We have in stock an oversupply of the following sizes and are offering them at a big reduction, WHILE THEY LAST. These sections are of a very good grade, and mostly standard sizes. For lack of warehouse room we are sacrificing them at the following low prices:

No. 2.—4 1/4 x 4 1/4 x 1 3/4, Two Beeway.....	per M	\$10.00
No. 2.—4 1/4 x 4 1/4 x 1 1/2, Two Beeway.....	per M	10.00
No. 2.—4 1/4 x 4 1/4 x 1 1/2, Plain or No Beeway.....	per M	9.00
No. 2.—3 3/8 x 5 x 1 1/2, Plain or No Beeway.....	per M	9.00
No. 1.—4 x 5 x 1 7/16, Plain or No Beeway.....	per M	10.00
No. 2.—4 x 5 x 1 7/16, Plain or No Beeway.....	per M	9.00
Mill Run—4 x 5 x 1 7/16, Plain or No Beeway.....	per M	9.70

The above prices are net, cash with order. Sold in lots of not less than 1000.

We are well prepared to fill all orders for Bee Supplies promptly. Send us your inquiries and we will be pleased to quote you our prices. Send us your name and address and receive our next season's catalog and price list when same is published.

AUGUST LOTZ COMPANY, --: BOYD, WISCONSIN

## THAGARD'S ITALIAN QUEENS

Bred for Quality. My Three-Band Queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

We have enlarged our queen-rearing department to such an extent that we will be in a position to turn out three thousand queens a month in 1921. We have tested out a nice lot of breeding queens from Italy, and will use them altogether as breeders in the future; the lot that we have selected for breeders have proved wonders; money cannot buy better queens than we will have ready for our customers in the future. Place your orders now for Spring delivery, if you want your queens early.

Prices for April to July.

After July 1st.

	1	6	12	1	6	12
Untested .....	\$2.00	\$ 8.00	\$15.00	\$1.50	\$ 7.50	\$13.50
Select Untested .....	2.25	10.00	18.00	1.75	9.00	16.00
Tested .....	3.00	16.00	28.00	2.50	13.00	24.00
Select Tested .....	5.00	25.00	50.00	5.00	22.00	41.50

We guarantee pure mating, safe arrival, and perfect satisfaction. Circular free.

V. R. THAGARD

--: --: GREENVILLE, ALABAMA



# YOU WANT TO SAVE ABOUT 60% ON YOUR SUPPLY BILL

We have bought the stock of the M. C. Silsbee Company, which we are offering at a saving up to 60%. This stock carries our guarantee, which reserves you the right to return at our expense any article not exactly as represented.

It consists of 8 and 10 Frame One-story Hives, Hive Bodies, Extracting Supers, Hoffman Frames, Shallow Extracting Frames, and Bottom Boards.

If you are in need of any of this equipment, let us quote you on your list.

Dadant's Foundation, Lewis Beeware, Root's Extractors in stock, also Storage Tanks.

Our office is established in our New Building and our office staff reorganized, and your correspondence is assured prompt attention.

Send for shipping tags to ship your old combs to be rendered.

## THE DEROY TAYLOR COMPANY NEWARK, NEW YORK

### Queens Bees by the Pound · Queens

The rush of our bee-shipping season will practically be over by July 1st; we will then be in position to take care of your QUEEN orders.

Just received a picture from a party showing a colony built up from about 2 pounds of bees and a queen last spring, 1919, and then weighed 330 pounds gross; others in the yard did better than that one. We have had colonies here gather 400 pounds spring crop.

A party wrote from Chicago: "The shipment of bees was received on May 7th this year, hived same day; did not examine until 18th, when we found all queens accepted and they had laid in three frames. We greatly appreciate receiving such good grade of bees and hope to favor you with larger orders in the future." Another from Nebraska: "Wish to tell you how well pleased I am with the business done with you; some of the 50 packages had less than 100 dead bees in them. Those queens of yours are the best uniform QUEENS I have ever received. What is your price on 200 2-pound pkgs. with queens for spring 1921?" Our QUEENS are hardy gentle Italians; they grow bees that fill the supers. GUARANTEE safe arrival and satisfaction on QUEENS. With my method of feeding can ship bees successfully in July and August. Get a few packages and build them for the fall flow or winter. Send for FREE Circular giving reference, prices by Parcel Post, Nuclei, Guarantee, etc. Twenty years a beekeeper.

Advertising, labor, and sugar have all advanced, yet we quote Bees and Queens July 1st balance of the year as follows:

	1	6	12	50	100
Untested Queens .....	\$1.50	\$7.50	\$13.50	\$48.00	\$95.00
Select Untested Queens ..	1.65	8.25	14.85	52.80	104.50
Tested Queens .....	2.50	13.50	27.00	110.00	
Select Tested Queens ....	3.00	16.20			
1-pound pkg. Bees .....			\$2.40; 25 or more	\$2.16 each	
2-pound pkg. Bees .....			4.25; 25 or more	3.83 each	
3-pound pkg. Bees .....			6.25; 25 or more	5.62 each	

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -- CALLEN, TEXAS  
E. B. AULT, Prop.



# DON'T SEND A PENNY

The shoes offered here are such wonderful values that we gladly send them, **no money down**. You will find them so well made and so stylish and such big money-saving bargains that you will surely keep them. So don't hesitate—just fill out and mail the coupon and we will send you a pair of your size. No need for you to pay higher prices when you can buy direct from us—and no need sending money in advance before receiving the shoes. Why pay out \$6, \$8 or more for shoes not nearly so good? Act now. Mail the coupon today while this special offer holds good. Pay only when shoes arrive. And your money back if you want it.

## Great Work Shoe Offer

We can't tell you enough about these shoes here. This shoe is built to meet the demand for an outdoor city workers' shoe and for the modern farmer. Send and see for yourself. Built on stylish lace Blucher last. The special tanning process makes the leather proof against acids in milk, manure, soil, gasoline, etc. They outwear three ordinary pair of shoes. Most comfortable work shoe ever made. Very soft and easy on the feet. Made by a special process which leaves all the "life" in the leather and gives it wonderful wear-resisting quality. Double soles and heels. Dirt and waterproof tongue. Heavy chrome leather tops. Just slip them on and see if they are not the most comfortable, most wonderful wearing work shoes you ever wore.

Pay **\$3.98** for shoes on arrival.  
only If after examination you don't find them all you expect, send them back and we will refund your money.

Get This  
Remarkable  
Bargain



Mark  
X in ☐ by No.  
AX15106 in coupon. Be sure to  
give size wanted.

### Send Coupon

Keep your money until shoes come. Not a cent to pay now. Sent direct to your home on approval. Then let the shoes themselves convince you of their bargain value or return them and get your money back. This is the modern, sensible way to buy—the way thousands are buying their shoes today direct from us—getting satisfaction—saving money. Fill out the coupon and send it now.

**Leonard-Morton & Co.**  
Dept. 6927 Chicago



To  
order  
these shoes  
mark X in the ☐  
by No. AX18068 in  
coupon. Be sure to  
give size and width  
when ordering.

Send No Money With Order

## Stylish Dress Shoe

Special bargain to close out a limited stock of these smart Dress Shoes. Act quickly if you want a pair. Made in classy lace Blucher style. Splendid quality calf uppers. Splendid solid leather soles and heels. Come in black only. At our price these shoes challenge all competition. Make your own decision after you examine and try them on. Sent absolutely on approval. You must see them to appreciate the fine quality of material, workmanship and astonishing bargain value. No money with order. Be sure to give size when ordering.

Pay **\$3.98** for shoes on arrival. And that re-  
only turned if you don't keep the shoes.  
Send today because a price like this soon sells the stock.

**Leonard-Morton & Co., Dept. 6927 Chicago**

Sent at once the shoes which I have marked X in ☐ below. I will pay price for shoes on arrival with the understanding that if I do not want to keep them I can send them back and you will refund my money.

☐ Work Shoes  
No. AX18068 \$3.98 ☐ Dress Shoes  
No. AX15106 \$3.98

Size.....

Name.....

Address .....



# YOUR MONEY

## *To Our Beekeeper Friends:*

The great growth of the beekeeping business everywhere has resulted in larger and larger demands upon the bee-supply manufacturer. Because of this fact, our business calls for constantly increasing capital. We can meet these new demands by calling on our banker friends, who are and always have been glad to meet our needs.

But we would prefer to become independent of the banks by calling into our company as stockholders a larger number of our beekeeper friends. It is a plain business proposition that a bee-supply manufacturer prefers beekeepers as stockholders, for the good will of a large number of beekeeping stockholders means increased prosperity for the bee-supply manufactory in which they are financially interested.

Accordingly, we shall offer our beekeeper friends another \$100,000 of our 7% second preferred stock at par and accrued dividend from June 15 last. The previous offering of this stock, in 1919, was oversold \$40,000. It has every safety an investor can ask. Write for fullest information. We shall be pleased to answer any and all questions an intending stockholder may want to know about this old but still growing business.

Your savings and surplus money, we are certain, can not be put into a safer or better investment. All our own money and lifelong savings are in this same investment.

## THE A. I. ROOT COMPANY

### Medina, Ohio

A. I. Root, President.

J. T. Calvert, Treasurer

## WE WANT TO SELL YOU BEE SUPPLIES

After your year's labors you have gathered in the golden store. You may need a few supplies for this year, but you certainly need some for next season. Order this month and receive the early order discount.

The railroads are congested now, and the probability is that the longer you wait the more congested they will become. Order now and avoid delay.

Drop us a card, and we will be pleased to quote you.

NOW is the time to order for next season.

We can fill your orders with more accuracy and promptness.

**F. A. Salisbury**  
1631 West Genesee Street  
Syracuse, N. Y.





9-oz. Taper Jar

## SPECIAL SALE OF HONEY JARS

We have a surplus stock of taper jars, holding 9 ounces, put up two dozen in a case, including lacquered tin tops, at our Philadelphia branch. The cost of these jars has more than doubled in the past three years. We offer for a short time the surplus stock available at 85 cents per case, \$8.00 for 10 cases, \$75.00 for 100 cases. Prices f. o. b. Philadelphia.

Send your order direct to

**THE A. I. ROOT COMPANY**  
Medina, Ohio

## Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, \$1.25 each; 6 for \$7.00. Circular on application. Queens delivered after June 1.

**O. E. Tulip, Arlington, Rhode Island**  
56 Lawrence Street

## PATENTS

Practice in Patent Office and Court  
Patent Counsel of The A. I. Root Co  
Chas. J. Williamson, McLachlan Building,  
WASHINGTON, D. C.

## WHEN YOU THINK OF BEEKEEPERS' SUPPLIES

## THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

**THE A. I. ROOT COMPANY** (Indianapolis Branch) 873 MASS. AVE.

## DOLL SAYS

don't invite Disappointments by delay in ordering your Honey Containers. Make sure of having all the Cans and Bottles you will need, by ordering them NOW. I am splendidly prepared to fill all orders for Friction Top Cans of 3 lbs. to 10 lbs. capacity—5-gallon Square Cans—and ½-lb. to 3-lb. white flint glass Screw Top Honey Bottles. Standard-grade goods, at prices that will interest you.

### AN EASY WAY TO SAVE MONEY

You can save 15 per cent to 20 per cent on the cost of your Honey Cans and Bottles this year, by ordering them from DOLL—and instructing us to ship direct from factory to you.

I am also ready to make prompt shipments of anything wanted in the way of White Pine Hives, supers, extractors, Foundation, and other Supplies—none better to be had in either Style, Quality or Construction.

BE ready when the Honey begins to flow, by GETTING ready NOW.

Be sure to get my price quotations  
before ordering this year's Supplies.

## P. J. DOLL BEE SUPPLY CO.

NICOLLET ISLAND

MINNEAPOLIS, MINN.

# Forehand's Three Bands

## THE THRIFTY KIND

Twenty-eight years of select breeding brings these bees up to a standard surpassed by none, but superior to many.

Place your order now for August and September delivery.

No reduction in prices after July 1st as stated in circular.

### PRICES:

	1	6	12	100 Each
Untested - - -	\$1.50	\$7.50	\$13.50	\$1.00
Select Untested -	1.75	9.00	16.50	1.25
Tested - - - -	2.50	13.00	24.50	2.00
Select Tested - -	4.00	22.00	41.50	3.35

W. J. FOREHAND & SONS, FORT DEPOSIT, ALA.  
THE BEE MEN

# QUEENS

Queens of highest quality by return mail; all orders filled next day after received. This is your last chance to get your colonies headed for 1921. Rush your orders now; we guarantee to please you; the three-banded Italian has a reputation. We are skillful and experienced queen-breeders. Ten years' experience in breeding queens insures queens of highest quality. We do not leave anything undone. We guarantee our queens to be reared under as favorable conditions as any in U. S. A., and that no better can be bought with money. The strain is proved and of highest quality. Now for your 1921 honey crop you are wanting more honey; to get more you must have your colonies headed with good queens. Let us have your orders for August and September. We guarantee safety from all foul-brood disease because our apiaries are absolutely free from any disease.

### Prices from August to September

	1	6	12	100
Untested. ....	\$1.50	\$7.50	\$13.50	\$1.00 each
Select Untested ....	1.75	9.00	16.50	1.25 each
Tested. ....	2.50	13.00	24.50	2.00 each
Select Tested. ....	4.00	22.00	41.50	3.35 each

We guarantee everything we sell; you take no risk when you deal with us; safe arrival and satisfaction is our motto; customer is the judge. Reference: Bank of Ramer, Ramer, Ala.

**The Farmer Apiaries - - Ramer, Alabama**

"Where the Good Queens come from"



# SELL YOUR CROP OF HONEY

TO

## HOFFMAN & HAUCK, INC.

WOODHAVEN, N. Y.

NO LOT TOO LARGE OR TOO SMALL FOR US TO HANDLE

Mail Sample of Extracted, State Quantity and How  
Packed and We Will Make You Our Best Offer

### CONTAINERS FOR YOUR CROP

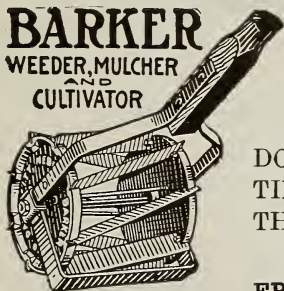
All Sizes, Glass or Tin

2½-lb. Pails, per case of 24.....	\$1.80 each	Crates of 100.....	\$7.00
5 -lb. Pails, per case of 12.....	1.65 each	Crates of 100.....	10.70
10 -lb. Pails, per case of 6.....	1.35 each	Crates of 100.....	17.00
White Flint Glass Quart Jars (3 lbs. honey) with gold lacquered screw caps, per case of 12.....			1.10
1-lb. Screw Cap Honey Glasses, per case of 2 dozen.....			1.35
5-Gallon Tins, used, good condition, 2 tins per case.....			.50

HOFFMAN & HAUCK, Inc.    :-    :-    WOODHAVEN, N. Y.

## BARKER

WEEDER, MULCHER  
CULTIVATOR



## Weeds and Mulches

### In One Operation

DOES BETTER WORK THAN A HOE—TEN  
TIMES AS FAST—SAVES TIME AND LABOR,  
THE TWO BIG EXPENSE ITEMS—EASY TO  
OPERATE.

**FREE—Illustrated Book and Factory-to-User Offer**

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

**“Best Weed Killer Ever Used”**

**LEAF GUARDS**—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER  
MFG. CO.  
Dept. 10

DAVID CITY, NEB

Gentlemen. — Send me  
postpaid your free book and  
Factory-to-User Offer.

**BARKER MANUFACTURING CO.**  
Dept. 10      David City, Nebraska

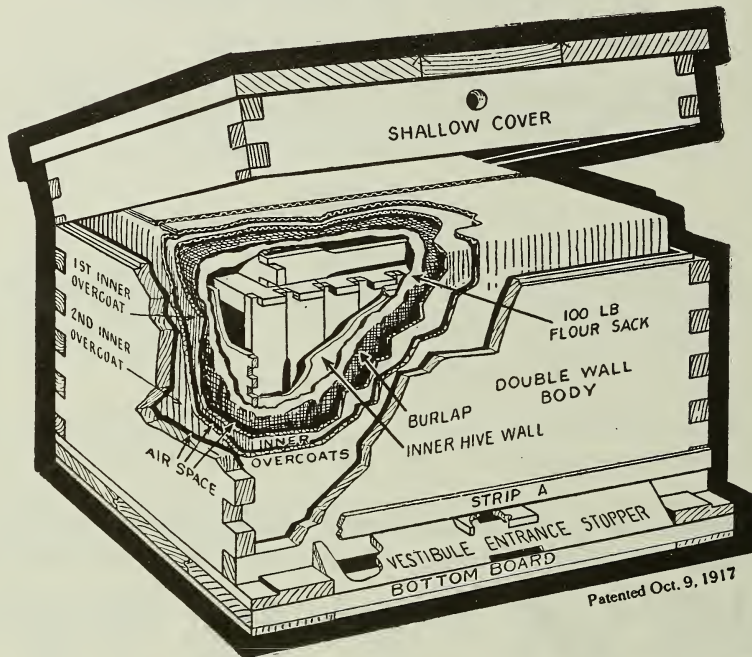
Name \_\_\_\_\_

State \_\_\_\_\_

Town \_\_\_\_\_

R. R. No. \_\_\_\_\_ Box \_\_\_\_\_

# Winter Problem Solved by the Hive with an Inner Overcoat . .



Patented Oct. 9, 1917

Furnished with Jumbo Depth or Standard Hoffman Frames

Plan to try out a sample shipment of these hives the coming Winter and be convinced of their efficiency and durability. Our Winter's loss the past Winter of 1919-20 was less than 5 per cent, and this was due to starvation and poor Queens. The bees were confined to the hives without a flight for about 120 days. These hives will Winter normal colonies perfectly under the most severe conditions. We have many testimonials too numerous to publish. The two Inner Overcoats with intervening dead air spaces and inner covering or blankets close up about the brood-nest is what does the trick. A person could have any amount of blankets fastened up on the walls of a room and still freeze to death if left in the center of the room without close-up protection or insulation. If you can eliminate your Winter Losses, think what it will mean to you.

Order early, as freight is slow and uncertain and will get more serious as Winter approaches. Do not fail to try out a sample shipment. Catalog and special circulars sent on request.

## TIN HONEY PACKAGES

2	lb. Friction top cans, cases of 24	5	lb. Friction top pails, crates of 100
2	lb. Friction top cans, crates of 612	5	lb. Friction top pails, crates of 200
2½	lb. Friction top cans, cases of 24	10	lb. Friction top pails, cases of 6
2½	lb. Friction top cans, crates of 450	10	lb. Friction top pails, crates of 100
5	lb. Friction top pails, cases of 12		

Ask for our special money-saving prices, stating quantity wanted.

**A. G. Woodman Co., Grand Rapids Mich., U. S. A.**



# THE BASIS OF CONFIDENCE

What gives you confidence in a man or in a business firm, and in what they say and in what they make? It is just one thing--experience with them, day in and day out, year in and year out. Here is the experience of some of the customers of The A. I. Root Company:

## **Good for 48 Years.**

"I purchased my stock and outfit of G. W. Gates of Raleigh, Tenn. Among the lot is a Langstroth-Root portico hive that has been in constant use since 1872. How is that for lasting?"

Memphis, Tenn.

S. B. Myers.

## **Give Perfect Satisfaction.**

"We have bought our bee supplies from the Root Company for the last 25 years. I represent the Bitter Root Stock Farm. We have 234 hives of bees. Your bee supplies have always been first class, given perfect satisfaction and came on time. Your dealing has always been scrupulously honest and fair."

Hamilton, Mont.

Frank Meek.

## **The Same High Standard.**

"I received \$122 worth of supplies from your Council Bluffs branch about two weeks ago, but there was nothing unexpected about them. They were the same high standard of perfection as to quality, material, and workmanship as the Root's goods have been ever since I became acquainted with them in 1903. I will send another order to Council Bluffs in a few days."

Lohrville, Ia.

Chas. L. Ruschill.

## **An Honest Man.**

"I don't think I need a lantern to find an honest man. Readers of Gleanings in Bee Culture will not be surprised when I refer them to the head of The A. I. Root Company. I sent the firm a small order, including two cents extra for postage. Mr. Root used two cents to return my postage! Pretty safe to have dealings with folks like that, don't you think?"

Alton, Ind.

Fred Johnson.

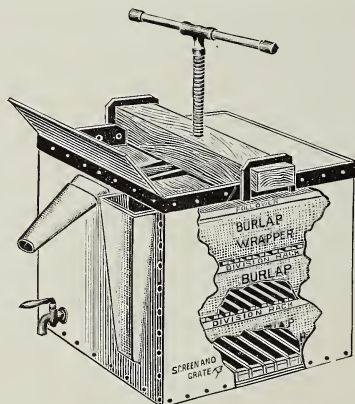
Hives that last for a half century and beekeeping goods of the guaranteed high quality manufactured by us and honestly sold are not high priced. They are cheaper than any other agricultural implements made today, for they last so much longer. It is the stuff in them and the lasting qualities that determine the value of goods.

## **EARLY ORDER CASH DISCOUNTS**

Take advantage of our early order cash discounts: August, nine per cent; September, eight per cent; October, seven per cent; November, six per cent; December, five per cent. Send for our "Year End Special" price sheet.

**The A. I. Root Company, Medina, Ohio**

# WAX IS MONEY



## THE HERSHISER WAX-PRESS

Do you know that nearly every dealer who extracts wax from old combs for beekeepers or for his own use to make into bee comb foundation uses an extractor of the Hershiser type?

This is because it is the most efficient wax-extractor on the market which will handle quantities of old combs or cappings at one time. Less than one per cent of wax is left in the slumgum.

The Hershiser wax-extractor tank may be used to heat or liquefy extracted honey as it holds four 60-pound honey cans. Many beekeepers use it to drain cappings and to work wax into big cakes.

Sold by Distributors of Lewis "Beeware."  
Write for free booklet on this press.  
Early Order cash discount 8 per cent in September.

Look  
For



This  
Mark

**G. B. LEWIS COMPANY, WATERTOWN, WISCONSIN**

Branches and Distributors Everywhere.